

DTIC FILE COPY

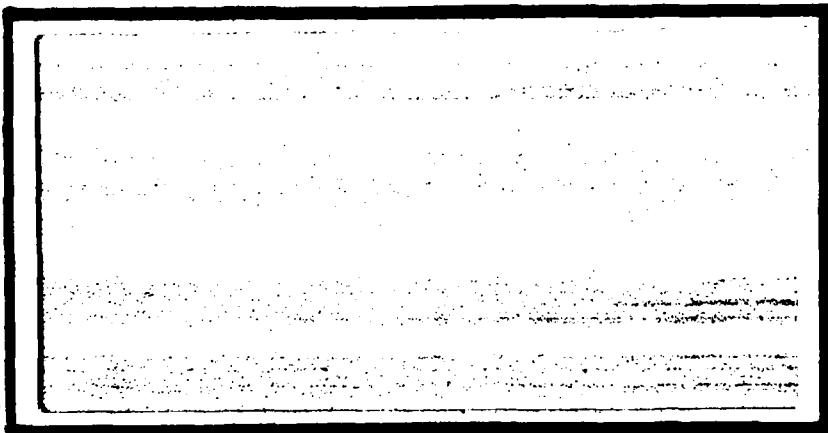
(2)

AD-A216 421



DTIC
ELECTED
JAN 12 1990

S B D
Co



DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

90 01 11 007

AFIT/GCM/LSL/89S-14

(2)

AN ANALYSIS OF STATUTORY REQUIREMENTS
FROM THE 100TH CONGRESS
ON THE USE OF FIXED-PRICE TYPE CONTRACTS
FOR WEAPON SYSTEM DEVELOPMENT

Thesis

David M. Steenbarger
Captain, USAF

AFIT/GCM/LSL/89S-14

DTIC
ELECTE
JAN 12 1990
S B D

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

The contents of the document are technically accurate, and no sensitive items, detrimental ideas, or deleterious information is contained therein. Furthermore, the views expressed in the document are those of the author and do not necessarily reflect the views of the School of Systems and Logistics, the Air University, the United States Air Force, or the Department of Defense.

AN ANALYSIS OF STATUTORY REQUIREMENTS FROM THE 100TH CONGRESS
ON THE USE OF FIXED-PRICE TYPE CONTRACTS FOR WEAPON SYSTEM DEVELOPMENT

THESIS

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Contracts Management

David M. Steenbarger, B.A., B.S.

Captain, USAF

September 1989

Approved for public release; distribution unlimited

Preface

The purpose of this study was to develop recommendations for implementing the current regulatory guidance on the use of fixed-price type contracts for weapon system development. One desired outcome was a recommendation for the level of flexibility at which further implementing requirements should operate. The other desired outcomes were clarifications of the two criteria on realistic pricing and allocation of risk, the basis on which the use of a fixed-price type development contract is approved.

A comprehensive review of congressional documents provided information to which were applied integrating approaches derived from an examination of the law review literature and current legal texts. These approaches synthesized the information into trends of textual evolution and statements of purpose which were the bases of the conclusions and suggestions for implementation and further research.

A major effort unfolds, develops, and comes to completion only with the help of many people. I wish to thank Dr Eileen Donnelly, my advisor, and Dr John Garrett, my reader, both of whom provided gracious and patient leadership, good counsel, and friendly encouragement. I also wish to thank Major Bernard Faenza, Dr Charles Fenno, Mrs Shirley Sawyer, Dr Guy Shane, and Major John Stibravy, all of whom provided many valuable comments, and Mrs Carol Sullivan of the AFIT library, whose assistance with interlibrary loans was indispensable. And finally, for my wife Lin, whose devoted support of love and prayer make all things possible, I am forever grateful.

David M. Steenbarger

Table of Contents

	Page
Preface	ii
List of Figures	v
Notation	vi
Abstract	ix
I. Introduction	1
Background	1
General Issue	4
Literature Review	5
Specific Problem	23
Investigative Questions	24
Chapter Summary and Preview of the Research	27
II. Methodology	28
Basic Concepts	28
Sources of Information	31
Integrating Approaches for the Investigative Questions	50
Chapter Summary	72
III. Section 8118 of the Department of Defense Appropriations Act in the Continuing Resolution for Fiscal Year 1988 (Public Law 100-202)	74
Legislative History	74
Analysis	80
Chapter Summary	93
IV. Section 8085 of the Fiscal Year 1989 Department of Defense Appropriations Act (Public Law 100-463)	95
Legislative History	95
Analysis	102
Chapter Summary	106
V. Section 807 of the Fiscal Year 1989 National Defense Authorization Act (Public Law 100-456)	107
Legislative History	107
Analysis	128
Chapter Summary	160



Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

	Page
VI. Section 105 of the Defense Authorization Amendments and Base Closure and Realignment Act (Public Law 100-526)	163
Legislative History	163
Analysis	166
Chapter Summary	169
VII. Summary, Findings, Conclusions, Recommendations, and Suggestions for Further Research	170
Summary of Research Effort	170
Findings	173
Conclusions	181
Recommendations	185
Suggestions for Further Research	186
Appendix A: Testimony on Fixed-Price Type Contracts for Weapon System Development from Hearings on the Fiscal Year 1988 Department of Defense Appropriations Act	190
Appendix B: Testimony on Fixed-Price Type Contracts for Weapon System Development from Hearings on the Fiscal Year 1989 Department of Defense Appropriations Act	223
Appendix C: Testimony on Fixed-Price Type Contracts for Weapon System Development from Hearings on the Defense Industry and Technology Act of 1988 and the Fiscal Year 1989 National Defense Authorization Act	237
Bibliography	263
Vita	279

List of Figures

Figure	Page
1. Example of Revisions to a Text of Legislation	52
2. Revisions to Section 8105 of H.R. 3576 Which Yielded Section 8118 of Public Law 100-202	81
3. Revisions to Industry Advisory Group Draft Which Yielded Section 3 of S. 2254	129
4. Revisions to Section 3 of S. 2254 Which Yielded Section 802 of S. 2355	131
5. Revisions to Section 802 of S. 2355 Which Yielded Section 802 of H.R. 4264 as Amended	134
6. Revisions to Section 802 of H.R. 4264 as Amended Which Yielded Section 807 of H.R. 4264	138
7. Revisions to Section 8085 of Public Law 100-463 in Section 105 of Public Law 100-526	168

Notation

AEA -- American Electronics Association
AFA -- Air Force Association
AIA -- Aerospace Industries Association
AMRAAM -- Advance Medium-Range Air-to-Air Missile
ASPJ -- Airborne Self-Protecting Jammer
ATF -- Advanced Tactical Fighter
CCH -- Commerce Clearing House
CDRL -- Contract Data Requirements List
CPIF -- Cost Plus Incentive Fee
CR -- Continuing Resolution
DAC -- Defense Advisory Circular
DARPA -- Defense Advanced Research Projects Agency
DFARS -- Department of Defense Federal Acquisition Regulation Supplement
DIVAD -- Divisional Air Defense
DLSIE -- Defense Logistics Studies Information Exchange
DoD -- Department of Defense
DoDD -- Department of Defense Directive
DoN -- Department of the Navy
DTIC -- Defense Technical Information Center
ECP -- Engineering Change Proposal
EPA -- Economic Price Adjustment
FAR -- Federal Acquisition Regulation
FEI -- Financial Executives Institute
FFP -- Firm Fixed-Price
FPI -- Fixed-Price Incentive

FPR -- Fixed-Price Redeterminable
FSD -- Full-Scale Development
FSED -- Full-Scale Engineering Development
FY -- Fiscal Year
FYDP -- Five Year Defense Plan
GAO -- General Accounting Office
GE -- General Electric
GFE -- Government Furnished Equipment
GPO -- Government Printing Office
GSA -- General Services Administration
HAC -- House Appropriations Committee
HASC -- House Armed Services Committee
H.J. Res. -- House Joint Resolution
H.R. -- House of Representatives
IAG -- Industry Advisory Group
IBM -- International Business Machines
IR&D -- Independent Research and Development
IRST -- Infrared Scan/Track
JTIDS -- Joint Tactical Information Distribution System
LHX -- Light Helicopter (Experimental)
MPC -- Most Probable Cost
MYP -- Multiyear Procurement
NASA -- National Aeronautics and Space Administration
NASP -- National Aero Space Plane
NAVAIR -- Naval Air Systems Command
NPDM -- Navy Program Decision Meeting
NSIA -- National Security Industrial Association
NTE -- Not-to-Exceed

OPEVAL -- Operational Evaluation
OSD -- Office of the Secretary of Defense
P.L. -- Public Law
R&D -- Research and Development
RDT&E -- Research, Development, Test, and Evaluation
S. -- Senate
SAC -- Senate Appropriations Committee
SASC -- Senate Armed Services Committee
SECNAV -- Secretary of the Navy
SECNAVINST -- Secretary of the Navy Instruction
SOW -- Statement of Work
S&I -- Surveys and Investigations
TPP -- Total Package Procurement
USAF -- United States Air Force
U.S.C. -- United States Code
USD(A) -- Under Secretary of Defense for Acquisition
USMC -- United States Marine Corps

Abstract

Since October of 1987, Congress has enacted four bills with statutory requirements which extend congressional oversight into the use of fixed-price type development contracts. These requirements were implemented with the publication of guidance in the Department of Defense Federal Acquisition Regulation Supplement on 31 January 1989. The research effort was then begun to determine the nature of appropriate, further implementation by the military departments. The desired outcomes were suggestions for the level of flexibility at which further implementing regulations should operate and clarifications of the two criteria of realistic pricing and risk allocation which are the statutory basis on which the use of a fixed-price type development contract is approved.

A comprehensive review of congressional documents provided information to which were applied integrating approaches derived from an examination of the law review literature and current legal texts. These approaches synthesized the information into findings on the trends of the statutes' textual evolution and on statements of purpose.

The study found a definite trend from more restrictive language to more flexible language in the legislative history of all four statutes. The study also found several purposes which Congress hoped to achieve. With the effect of limiting the use of fixed-price type development contracts to procurements which satisfied the two criteria of realistic pricing and risk allocation, Congress hoped to be able to choose the composition of military goods and services based on relative program

and military merit within budget limitations, rather than be restricted to an existing composition because of fixed-price contractual commitments. Congress also wanted the Department of Defense acquisition community to use a contract structure in development programs which could provide for a variety of cost outcomes from the unfolding of a dynamic task. Congress wanted the contract type to be compatible with the nature of development effort.

The conclusions of this study are the military departments should not add additional, more restrictive guidance whose effect is to increase the number of fixed-price type development contracts subject to review by higher headquarters. Instead, the guidance should take the form of positive direction which clarifies the approach the procurement activities should use when justifying the use of a fixed-price type contract for a development program. Included in this direction should be definitions for "realistic" pricing and an "equitable and sensible" allocation of risk. "Realistic" pricing is the analysis that determines the financial outcomes of future events and generates a distribution of these outcomes with the probability of each occurrence. An "equitable and sensible" allocation of risk assumes a narrow distribution of possible financial outcomes and then puts the maximum government financial liability on this distribution at a point greater than a very high percentage of the possible outcomes.

From these conclusions emerges the recommendation that the military departments should use the definitions given above as the basis of a prescriptive approach for field procurement activities to follow when requesting approval to award a fixed-price type development contract in accordance with existing regulations and statutes.

AN ANALYSIS OF STATUTORY REQUIREMENTS FROM THE 100TH CONGRESS
ON THE USE OF FIXED-PRICE TYPE CONTRACTS FOR WEAPON SYSTEM DEVELOPMENT

I. Introduction

This chapter presents the background and general issue of this thesis. The chapter will review the available literature on the selection of fixed-price type contracts for weapon system development. An outcome of this literature review will be a determination of the research opportunities that are available in this area. Based on this determination, the specific problem and investigative questions will be presented.

Background

Since October of 1987 with the introduction of H.R. 3576, the bill for fiscal year (FY) 1988 Department of Defense (DoD) appropriations, Congress has shown its interest in DoD's use of fixed-price type contracts for weapon system development programs. Four bills with provisions which extend congressional oversight and control into this area have become public law. One of these provisions is section 8118 of the DoD Appropriations Act in the Continuing Resolution for FY 1988, public law (P.L.) 100-202. The text of this provision is as follows:

Sec. 8118. None of the funds provided for the Department of Defense in this Act may be obligated or expended for fixed price-type contracts in excess of \$10,000,000 for the development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense

below the level of Assistant Secretary of Defense: Provided further, That the Under Secretary report to the Committees on Appropriations of the Senate and House of Representatives in writing, on a quarterly basis, the contracts which have obligated funds under such a fixed price-type developmental contract. (182:101 STAT. 1329-84)

Two other sections, section 8085 of P.L. 100-463, the FY 1989 DoD Appropriations Act, as amended by section 105 of P.L. 100-526, the Defense Authorization Amendments and Base Closure and Realignment Act, resulted in the following statutory requirement:

Sec. 8085. None of the funds provided for the Department of Defense in this Act may be obligated or expended for firm fixed-price contracts in excess of \$10,000,000 for the development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense.

(119:102 STAT. 2270-32 as amended by 121:102 STAT. 2625)

The last section, section 807 of P.L. 100-456, is part of the FY 1989 DoD Authorization Act. The text of this provision is as follows:

SEC. 807. REGULATIONS ON USE OF FIXED-PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall revise the Department of Defense regulations that provide for the use of fixed-price development contracts in a development program. The regulations shall provide that a fixed-price contract may be awarded in such a program only if--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The regulations also shall provide that if a contract for development of a major system is to be awarded in an amount greater than \$10,000,000, the contract may not be a firm fixed-price contract.

(B) A waiver of the requirement prescribed in regulations under subparagraph (A) may be granted by the Secretary of Defense, acting through the Under Secretary of Defense for Acquisition, but only if the Secretary determines

and states in writing that the award is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the regulations prescribed under such paragraph. The Secretary may delegate the authority in the preceding sentence only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) DEFINITIONS.--In this section, the term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act. (120:102 STAT. 2011)

Not only do these statutory provisions require determinations about realistic pricing and the allocation of risk before DoD can award some form of a fixed-price type development contract, but section 807 of P.L. 100-456 also requires DoD to issue regulatory guidance on fixed-price type development contracts. Defense Acquisition Circular (DAC) 88-4, dated 31 January 1989, incorporated this guidance into the DoD Federal Acquisition Regulation Supplement (DFARS) (27:4). The text in DAC 88-4 which implements the statutory requirement is as follows:

235.006 Contracting Methods and Contract Type.

(S-70) Fixed-Price Type Development Contracts.

(1) A fixed-price type contract (see FAR [Federal Acquisition Regulation] 16.201) may be awarded for a development program effort only if:

(i) The level of program risk permits realistic pricing;

(ii) The use of a fixed-price type contract permits an equitable and sensible allocation of program risk between the United States and the contractor; and

(iii) Prior to award, the contracting officer determines in writing that the criteria in paragraphs (S-70)(1)(i) and (ii) above have been met and that the fixed-price type contract selected is appropriate (but see paragraph (S-70)(2) below).

(2) A firm fixed-price development contract (see FAR 16.202) over \$10,000,000 for development of a major system (as defined in FAR 34.001), or a subsystem thereof, may be awarded only if its use is consistent with the criteria in paragraphs (S-70)(1)(i) and (ii) above and a determination authorizing its use is made by the Under Secretary for Defense for Acquisition (USD(A)) or designee. (27:235.0-5)

General Issue

The general issue is: "What should be reflected in further implementation of the statutory requirements?" Agencies are created to regulate and administer specific activities according to the legislature's requirements as expressed in statutes (104:2). Administrators must follow the authority of the statutes and create policy and procedures which stay within the authority delegated by the statute (104:4,23). Implementation is invalid if it is not within this authority (104:2).

Nature of Additional Regulatory Guidance on the Use of Fixed-Price Type Development Contracts. Additional regulatory guidance from the military departments would reflect the existing DFARS and the applicable statutes. The guidance based on a full background of congressional concerns would be more satisfactory than the guidance written without this background.

Content of Justification Which Supports Determinations. The Under Secretary of Defense for Acquisition (USD(A)) would require a written justification as a basis for the required determinations of realistic pricing and the allocation of risk. The Services would then have to prescribe the content of this justification. As with the guidance described in the preceding paragraph, the written prescription based on a full background of congressional concerns would be more satisfactory than the prescription without this background. The program managers in the services' buying activities could then write better justifications in response to this prescription if they understood congressional concerns and resolved them with the right kinds of information.

Literature Review

Topic Statement. This review summarizes the existing literature on the selection of fixed-price type contracts for weapon system development to identify the fundamental concern with using this contract type for development and to determine whether any source is available to address the general issue given above.

Scope of Literature Review. The search covered the Air University bibliographies; the Federal Publication's Briefing Papers and Yearbooks of Procurement Articles; the National Contract Management Journal Cumulative Subject, Author, and Title Index; and, the databases for DIALOGUE, Defense Logistics Studies Information Exchange (DLSIE), Defense Technical Information Center (DTIC), Federal Legal Information Through Electronics, General Accounting Office (GAO) reports, and the National Aeronautics and Space Administration. The literature review will also cover several recent studies sponsored by industry and non-profit groups.

Method of Organization. The review will begin with a discussion of risk and risk allocation. These elements are critical and form the basis on which both parties choose a contract type. Once the parties have satisfied themselves that they have properly identified and analyzed the risks, they can then choose a contract type which gives the fairest and most reasonable allocation of risk. The second part of this review will describe the main parts of the regulatory guidance used when choosing a contract type to implement the risk allocation. The review will give the specific guidelines for using fixed-price type contracts and a description of the different kinds of fixed-price type contracts. The third part of the review will present the nature of development work and focus on the appropriateness of using fixed-price

contracts for this kind of effort. The review will conclude with a discussion on the availability of sources for recent congressional legislation dealing with selection of contract type for weapon system development.

Discussion.

Risk: Definition, Quantitative Description, and Allocation.

Throughout the process that concludes in the award of a government contract, the government and the potential sources of supply often extensively assess the risk involved in doing business with each other (89:467). The risk at issue is whether and to what extent the parties to the contract will encounter difficulties or unforeseen events with associated added costs as they strive to meet their contractual obligations (89:467). In the case of weapon acquisition development efforts, the risk assessment "involves a thorough assessment of the technical problems which are anticipated to be encountered...and a judgment as to the extent of effort required to find solutions to these problems" (100:719). As people identify the particular circumstances they think will occur during the performance of the contract, they then try to negotiate prices and terms that will allow remedies for the circumstances (89:467). Obviously, no one can predict everything, and unforeseen events will occur. One or both of the parties must then absorb the impact of these identified or unforeseen events (89:467). The basic risk is financial, and the issue is who will bear the impact of future outcomes (74:1).

The financial risk is used in a narrow sense and does not deal with the contractor's loss of reputation or future business opportunities that result from the inability to perform (89:467). Nor does the narrow sense address the demoralization of either the

government or contractor personnel involved or the government's risk of not receiving timely delivery of the required supplies or services (89:467). The financial risk does not address the risk the government has of the contractor making excessive profits or its own buying activities being embarrassed by the way their contracts are performed (89:467). The financial risk is concerned only with the dollar value of satisfying all obligations of the instant contract in the face of future outcomes.

Quantitative techniques are available to describe these outcomes. These techniques are valuable because, when properly applied, they provide formal, systematic, and documented approaches when dealing with uncertainty (4:22). They range from extremely simple applications to the very complex (4:21). The simplest of these are techniques which take a short time to perform, examples of which are the "Equi-risk Contour Method," the "U.S. Army Risk Factor Method," and the "Probabilistic Event Analysis" (4:31-36). Other techniques are the "Graphic Method" and the "Method of Moments" (25:IV-10-IV-18,F-19-F-28,F-30-F-36; 111). Both of these techniques can provide a cumulative density function for total program cost (25:F-26,F-34; 111:IV-63). Another application based on statistics uses the central limit theorem as a means of combining component costs into a total system cost (72). The most complex techniques require a full-time specialized personnel and resources (4:40). One of these techniques uses the Beta distribution with a central range method to estimate the interval within which 80% of the cost probability is likely to occur (82:IV-8-IV-11). Other complex techniques involve Monte Carlo simulations organized around either a work breakdown structure or network model (25:IV-2-IV-6,IV-13-IV-14,F-1-F-14,F-28-F-30; 26:5-28-5-34,5-37-5-42;

82:IV-11-IV-20). These techniques can provide a range of possible cost outcomes, depending on the swiftness with which a response is needed, the level of required sophistication, and the availability of specialized personnel and resources. The prospective parties to a contract can use this information as a basis for deciding the best way to divide the risk between them.

A contract defines the division of risk between the parties in several ways, the first of which is through the pricing provisions (89:468). Three considerations arise when choosing the pricing provisions (89:468). The first consideration is the method of payment and the amount of risk to the contractor when the incurred costs are different from the amount that was originally envisioned (12:705; 89:468). Negotiators implement this consideration by the type of contract they choose (89:468). On the one hand is the fixed-price type contract, under which the government pays the contractor for only accepted work and which gives the contractor the risk of incurred costs above the amount originally envisioned (12:705). On the other hand is the cost-reimbursable type contract, under which the government pays the contractor for actual costs during contract performance and which lays the risk of added cost on the government (12:705). Further examination of relevant contract types is in the next section of this discussion. The second consideration is the point at which the parties agree on the envisioned cost (89:468). The contractor has more risk when the envisioned cost amount is negotiated before work begins (89:468). The third consideration is how much of the work is covered by the payment provisions (89:468). At one extreme, the amount of work may be carefully defined and cover a short period of performance (89:468). At the other extreme, the pricing provisions may cover

vaguely defined work over a long period of performance (89:468). Longer periods of performance put the contractor and government at greater risk because economic changes can have a great impact on the price that was originally envisioned (89:471). The pricing provisions are the most important way of defining the risk between the two parties (63:250; 83:44; 89:468).

The contract terms and conditions are the second way of dividing the perceived risk (89:468). The terms and conditions reflect the efforts of both parties to identify specific circumstances that can occur during contract performance, assign responsibilities to deal with the specific circumstances, and agree on remedies for any resulting impact (89:473). Contract clauses deal with changes in cost caused by government action or inaction (89:473). These clauses cover such circumstances as suspension of work, use of government property, payment of contractors, and changes to the work within the scope envisioned by the parties at contract award (89:473-474). Other contract clauses deal with changes in cost caused by contractor action or inaction (89:476). These clauses cover such circumstances as the failure to meet the contract schedule and the inability to deliver end items that conform to the contract requirements (89:477-478). Contracts also include clauses which deal with changes in cost from causes beyond the control of both the government and the contractor (89:475). These clauses cover such circumstances as excusable delay, an increase in taxes, and indemnification when the work involves unusually hazardous risk (89:476). By defining the duties and remedies for many specific situations, contract clauses both complement and refine the pricing provision's fundamental risk allocation (89:478).

The third and final way of allocating risk occurs in cases where, despite the most conscientious efforts of everyone involved, contracts are awarded whose risk allocation is seriously flawed (89:480). When the results of strict enforcement of contractual provisions would be unnecessarily harsh, administrative and judicial remedies are available (89:492). Appeals boards and courts compare the contract's risk allocation with the events that actually occur during the contract's performance (89:492). If the circumstance that caused the extra cost had been predicted and provided for, the boards or courts probably would not overturn the risk allocation the contracting parties had created for themselves (89:492). On the other hand, the boards or courts can intervene if they believe that the circumstance causing the extra cost could not have reasonably been within the original scope of the pricing provisions (89:492). In these cases, the administrative or judicial reallocation of risk is a means of "releasing the pressure generated by an agreement that does not satisfactorily resolve a problem that occurs during performance" (89:492). Compared to all the contracts between government and industry, the share of these kinds of flawed arrangements is small (89:492).

Selection of Contract Type.

Regulatory Guidance. Federal statutes and regulations have given great latitude to people who are choosing pricing provisions for a negotiated procurement (12:706). As of 1 October 1987, less than one month before the initial legislation on fixed-price type development contracts was proposed, several parts of the Federal Acquisition Regulation (FAR) provided policies on the selection of contract type. FAR paragraph 16.102 offered these policies for implementing the statutory guidance:

(a) Contracts resulting from sealed bidding shall be firm-fixed-price contracts or fixed-price contracts with economic price adjustment.

(b) Contracts negotiated under Part 15 may be of any type or combination of types that will promote the Government's interest, except as restricted in this part (see 10 U.S.C. 2306(a) and 41 U.S.C. 254(a)). Contract types not described in this regulation shall not be used, except as a deviation under Subpart 1.4.

(c) The cost-plus-a-percentage-of-cost system of contracting shall not be used (see 10 U.S.C. 2306(a) and 41 U.S.C. 254(b)). Prime contracts (including letter contracts) other than firm-fixed-price contracts shall, by an appropriate clause, prohibit cost-plus-a-percentage-of-cost subcontracts (see clauses prescribed in Subpart 44.2 for cost-reimbursement contracts and Subparts 16.2 and 16.4 for fixed-price contracts. (14:234)

FAR 16.103 provided more specific instructions for selecting a contract type and, while stating a preference for firm fixed-price contracts, gives flexibility to choose a contract type based on the level of risk and the basis for firm pricing.

(a) Selecting the contract type is generally a matter for negotiation and requires the exercise of sound judgment. Negotiating the contract type and negotiating prices are closely related and should be considered together. The objective is to negotiate a contract type and price (or estimated cost and fee) that will result in reasonable contractor risk and provide the contractor with the greatest incentive for efficient and economical performance.

(b) A firm-fixed-price contract, which best utilizes the basic profit motive of business enterprise, shall be used when the risk involved is minimal or can be predicted with an acceptable degree of certainty. However, when a reasonable basis for firm pricing does not exist, other contract types should be considered, and negotiations should be directed toward selecting a contract type (or combination of types) that will appropriately tie profit to contractor performance. (14:235)

The reader can see that a reasonable basis for firm prices is a prerequisite for using contracts which give greater cost risk to the contractor. The government wants to give the contractor enough risk to induce cost-conscious performance and does so by trying to create an environment in which all contractor personnel base their day-to-day decisions on alternatives which result in the lowest ultimate cost

(5:43; 12:708; 74:1). The government does not want to give the contractor the kinds of risk which are unpredictable and over which there is no control since these kinds of risks are associated with contingencies whose impact cannot be estimated (12:708). The contracting parties must find a balance between carefully defined goals, performance objectives, and specifications when choosing a contract type (12:708).

Part 35.006 (b)-(e) of the FAR clarified the complexities of finding this careful balance when procuring research and development (R&D) effort.

(b) Selecting the appropriate contract type is the responsibility of the contracting officer. However, because of the importance of technical considerations in R&D, the choice of contract type should be made after obtaining the recommendations of technical personnel. Although the Government ordinarily prefers fixed-price arrangements in contracting, this preference applies in R&D contracting only to the extent that goals, objectives, specifications, and cost estimates are sufficient to permit such a preference. The precision with which the goals, performance objectives, and specifications for the work can be defined will largely determine the type of contract employed. The contract type must be selected to fit the work required.

(c) Because the absence of precise specifications and difficulties in estimating costs with accuracy (resulting in a lack of confidence in cost estimates) normally precludes using fixed-price contracting for R&D, the use of cost-reimbursement contracts is usually appropriate (see Subpart 16.3). The nature of development work often requires a cost-reimbursement completion arrangement (see Subpart 16.3(d)). When the use of cost and performance incentives is desirable and practicable, fixed-price incentive and cost-plus-incentive-fee contracts should be considered in that order of preference.

(d) When levels of effort can be specified in advance, a short-duration fixed-price contract may be useful for developing system design concepts, resolving potential problems, and reducing Government risks. Fixed-price contracting may also be used in minor projects when the objectives of the research are well defined and there is sufficient confidence in the cost estimate for price negotiations. (See 16.207.)

(e) Projects having production requirements as a follow-on to R&D efforts normally should progress from cost-reimbursement contracts to fixed-price contracts as designs

become more firmly established, risks are reduced, and production tooling, equipment, and processes are developed and proven. (14:623-624)

DoD Directive (DoDD) 5000.1 repeats the preference of FAR 35.006(c) against the use of fixed-price type contracts for development when it stated its preference for cost-reimbursable type development contracts.

Contract type shall be consistent with all program characteristics. Fixed price contracts are normally not appropriate for research and development phases. For such efforts, a cost-reimbursable contract is preferable...(28:6)

The reader can see that in research and development efforts, the point of balance is the combination of clearly defined goals, performance objectives, and specifications on the basis of which both the contractor and government can estimate a price with high confidence.

If the government and contractor have agreed that a fixed-price type contract allocates the risk fairly, they can then choose from a variety of fixed-price type contracts to further refine the desired balance of risk. While all fixed-price type contracts require the contractor to deliver a product on schedule for a fixed price amount, different contract structures alter to an extent the exposure to unfavorable cost outcomes (12:705,715). Because the subject of this thesis is the use of fixed-price type contracts for weapon system development, this chapter will forego further discussion of cost-reimbursable type contracts and will concentrate instead on fixed-price type contracts. The next sub-section of this discussion will summarize the different kinds of fixed-price type contracts and then describe each of these kinds in more detail.

Fixed-Price Type Contracts.

Overview. At one end of the spectrum is the firm fixed-price (FFP) contract, in which the contractor carries all

financial and performance risks (5:32). If the government and contractor achieve a better risk allocation when the government agrees to carry the risk for part of the pricing structure, a fixed-price contract with economic price adjustment (EPA) may be appropriate (89:469). This kind of fixed-price contract is useful when both parties identify a contingency whose outcome depends on fluctuations in established prices or labor or material costs (5:31; 74:4; 78:79). In other situations, the effort is reasonably free of contingencies and the overall risk is calculable such that the parties can agree on prices for the probable and most pessimistic outcomes (5:31; 74:12; 78:80). The source of risk is defined less clearly, however, in that the source cannot be identified with the cost of certain items or categories of direct input (5:31; 74:12). A fixed-price incentive (FPI) contract would then be appropriate and is an arrangement in which the government and contractor share the risk in the range of outcomes between the most optimistic and pessimistic costs (5:32). The last fixed-price type contract, fixed-price redeterminable (FPR), is useful if the government and contractor can best allocate the risk by establishing prices after the start of work (89:468). The FPR (prospective) contract provides for determination of prices for increments of work as the overall effort is ongoing, and the FPR (retroactive) provides for determination of prices after the effort is complete (5:36; 74:5-6).

FFP Contract. The simplest and most preferred contract is the FFP contract (43:226; 63:233). The FFP contract's price does not vary during the life of the contract except for authorized changes (63:233; 74:3). The contractor's profit is part of the original price and varies according to how well or poorly the

contractor controls costs (63:233; 74:3). No pre-arranged formula or technique is available to adjust the original price if the contractor experiences unforeseen events that cause additional costs (12:716; 43:226). Because the financial risk is concerned with the dollar value of satisfying all obligations under the instant contract in the face of future outcomes, the FFP contract can adversely impact the contractor financially if costs are higher than expected (5:33; 74:3; 78:79). This financial risk impacts the government when contingency allowances are paid as additional profit if costs are lower than expected (5:33; 74:3; 78:79). From these kinds of circumstances, two conditions are necessary to use this kind of fixed-price contract (5:33; 74:3; 78:79). The first condition is that stable, definite specifications are available (5:33; 74:3; 78:79). The other condition is that both sides can accurately estimate the cost of the contractual work (5:33; 74:3; 78:79). The simplicity of this kind of fixed-price contract is commensurate with the absence of risk and the clarity with which the work can be defined.

Fixed-Price with EPA. When economic conditions are such that market activity and labor conditions may be unstable and the contractor is unwilling to accept all of the cost and performance risks, a fixed-price contract with EPA may be appropriate (5:31,34; 74:4). The EPA protects both the contractor and government against unpredictable fluctuations in published or established prices and labor or material costs (5:34; 74:4; 78:79). The EPA does this by allowing an adjustment in the established price based on catalog or market prices or in labor or material cost based on actual cost or cost indices (5:34; 74:4). Several conditions are necessary for this risk reduction through an EPA. The first condition is that the government

and contractor must identify the risk areas and define the outcomes so well that both parties can negotiate clauses prior to contract award which describe the rights and obligations of both sides when implementing specific remedies (74:4; 78:79). The other condition is that both sides can quantify the financial allowances necessary to protect against the contingencies and then remove these allowances from the negotiated contract price (5:34; 74:5). Risk reduction through an EPA is normally restricted to contingencies which are industry-wide and beyond the control of the contractor (5:34). The EPA on a fixed-price contract protects the contractor from financial loss when prices rise, and it also protects the government when prices fall by precluding the contractor from receiving the difference between the market and negotiated prices as additional profit (74:4).

FPI Contract. A FPI contract is commonly used if a more favorable risk allocation is achieved when the government and contractor share the risk in a fixed-price arrangement and the overall risks cannot be identified with industry-wide impacts on specific cost elements or their remedies as clearly defined as in an EPA clause (63:235). The government and contractor share variances from a negotiated target cost according to a sharing formula (43:228). If the actual cost is less than the target cost, the contractor receives a share of this underrun (63:235). This share of saved cost increases the contractor's negotiated profit (43:228; 63:235). If the actual cost exceeds the target cost however, the contractor's share of this overrun is taken from the negotiated profit (74:13). The government also shares the overrun, but only up to a point; the FPI contract has a negotiated ceiling price, above which the contractor is liable for all excess costs to deliver an acceptable product (12:760; 63:236). As

with the FFP contract, the contractor's final profit depends how well or badly he controls costs (43:228). Even though all fixed-price contracts limit the government's risk at some point, the FPI contract gives the contractor some relief from unfavorable outcomes through shared risk.

FPR Contract. This contract defers final pricing actions for the total effort until after the work has begun (89:470). This deferment usually happens because key pricing information for the total effort is unavailable prior to contract award (74:5). By not requiring firm final prices at contract award, the government can forego unnecessary contingency allowances and the contractor can avoid financial loss (74:5). The FPR (prospective) contract is appropriate when both sides can negotiate a final price for only an initial increment of work and can agree on specific times to establish the final prices for the remaining work (5:37; 63:234-235; 74:5). As the procurement continues and a reliable cost database accumulates as the government and contractor encounter more experiences, both sides have a firm basis on which to negotiate final prices for additional increments of work (5:36). When properly used, the FPR (prospective) contract resembles a series of FFP contracts for successive increments of work (5:36; 63:235). The FPR (retroactive) contract is appropriate when the government and contractor are unable to negotiate the final price of even the initial increment of work and can only agree on a firm ceiling, or not-to-exceed, price for the entire effort (63:235; 74:6). After completion of the entire effort, the government and contractor negotiate the final price based on actual costs and an evaluation of profit (5:37; 74:6). Other than the firm ceiling price, the contractor

has no incentive to control costs, and a FPR (retroactive) contract is used only on R&D work that costs less than \$100,000 (5:37).

Balance Among the Contract Parts and the Nature of Development Effort. The goal is to structure a contract whose parts balance each other by ensuring that the cumulative effect of the integrated parts does not put an unreasonable risk on one of the parties (43:236). In achieving the balance between the parts of a contract, the primary question is about the amount of work required to satisfy the contract requirements within the schedule and technical constraints (55:1089-1090). Both the government and contractor want to approach certainty as to how much effort is required (55:1089). The degree of certainty is based on both sides' ability to predict the amount of work needed to do the task (55:1089). The amount of work needed becomes the basis for a cost estimate (55:1089-1090). An unreasonable risk results when the balance between the contract parts does not allow for the amount by which the cost estimate can vary because of unpredictable events.

A serious imbalance can occur when, for example, a development contract requires achievement of goals whose outcomes are unpredictable (89:479). The FAR offers the following definition of development:

...the systematic use of scientific and technical knowledge in the design, development, testing, or evaluation of a potential new product or service (or an existing product or service) to meet specific performance requirements or objectives. It includes the functions of design engineering, prototyping, and engineering testing... (14:622)

Weapon system development often requires engineering effort that has never been done, and the knowledge of how to achieve the technical solutions is limited at best (55:1088; 89:471). In the case of development effort, the statement of work (SOW) describes tasks that

deal with applying existing knowledge to produce end items such as detailed designs and prototypes up to the point of production (7:443). The contractor's major effort is to design, build, test, and deliver a particular unit whose performance satisfies the specification (80:68). In weapon systems development, the end items are not only the pre-production units and software, but also logistics support equipment and documentation and all specifications and drawings needed to produce enough units to satisfy force structure requirements (80:68). While achieving technical objectives is the most important goal, the basis for any estimate of the amount of work needed to achieve the objectives in the face of unpredictable contingencies is usually uncertain (55:1087; 89:471).

The concern for the amount of work required to satisfy contractual obligations results from the risk exposure created by the statement of work and specifications of fixed-price type development contracts (53:8; 55:1090; 83:46). Even though a cost-reimbursable type contract may be more compatible with work whose inherent nature is uncertain, the force of competition may enable the government to use a fixed-price type contract (55:1090). In competitive situations, the offerors have very little time to identify possible risks (89:479). The force of competition may prevent the offerors from including adequate price contingencies as remedies for these risks, and the potential contractors then assume a much larger share of the financial risk as they agree to carry a greater liability for cost (89:479). Industry maintains that the government has the superior advantage in a competition which enables negotiators to reduce the government's cost exposure while giving the contractor as much of the risk as possible (83:46).

As shown earlier, FAR 35.006 recognizes this risk exposure of work whose nature is inherently uncertain when it suggests that the selection of contract type depends on the precision with which goals, performance objectives, and specifications are defined. Achieving the desired result may be for the most part beyond the ability of the contractor to predict, much less control (89:479). If enough uncontrollable or unknown risks surface in performance of a fixed-price contract, the tension between the pricing provisions, contract clauses, and nature of the work set forth in the SOW and specifications reaches the breaking point and the risk allocation becomes untenable (89:479). At this point, the contractor may seek administrative and judicial remedies discussed earlier.

Since July of 1987, several studies have appeared which discuss the use of fixed-price type contracts for weapon system development. Two of these studies are The Impact of Government Policies on Defense Contractors published by the Financial Executives Institute (FEI) and The Impact on Defense Industrial Capability of Changes in Procurement and Tax Policy: 1984-1987 published by the MAC Group under commission to three defense industry associations (2; 62). The FEI's study appeared in July of 1987 and was an overview of the impact on the defense industry of six government procurement policies (62:1). These procurement policies deal with the established ceilings on independent research and development costs, cost sharing on development programs, special tooling investment, progress payment rates, profit policy, and tax reform (62:10-11). The FEI study described the fundamental effects of these policies on the cumulative cash flow of a defense program (62:2). The study pointed out that these six procurement policies increase the contractor's financial risk by raising the level of

investment, extending the length of time needed to recover this investment, and decreasing the anticipated return (62:2-3). The FEI study is a useful, brief introduction to the effects of procurement policies on financial risk. More importantly, the FEI study served as the forerunner of the MAC Group study.

The MAC Group study expanded the work begun by the FEI study and published its report in February of 1988 (2). The MAC Group study had quantitative and qualitative parts to its analysis (2:12). In the quantitative part, the MAC Group took the six procurement policies from the FEI report, quantified their impact, and then used them as the basis for an analysis of cumulative cash flow (2:12). To measure the impact of procurement policies which could not be quantified, one of which was the use of fixed-price development contracts, the MAC Group supplemented its work with a qualitative analysis in which defense industry executives and stock analysts were interviewed (2:31-32). The MAC Group study summarized the interview data on the use of fixed-price type development contracts as follows:

While DoD has frequently reaffirmed its intent not to use fixed price contracts for development, the industry executives indicated that the services continue to use such contracts. The industry sees the use of such contracts coupled with requests for fixed price-type production options before development as a return to the Total Package Procurement era. Executives were almost fatalistic, believing that a long-term commitment to the defense industry required continued bidding on major systems projects even though the risk/reward relationship had become unacceptable. A number of our interviewees said they were waiting for another C5A to happen. After the disaster, new rules and practices would be adopted. Some (including CEO's) viewed this issue as likely to have a more serious impact on the industry than any of the changes we [the MAC Group analysts] quantified. (2:32)

From the interview results, the MAC Group analysts derived a major finding (2:32). This finding was, "Industry executives and Wall Street

analysts alike believe that DoD's increased use of fixed price development contracts will result in a procurement 'disaster'" (2:32). Based on this finding, one of the MAC Group study's conclusions is that fixed-price type development contracts should be eliminated (2:4). The MAC Group study presented no information, however, either questions asked or answers given, from the interviews. The finding relies only on a brief narrative summary of the interview results. Until a more thorough approach is used, the writer withholds judgment on the study's conclusion to eliminate fixed-price type development contracts.

The third and last study, Lifeline in Danger: An Assessment of the United States Defense Industrial Base, was prepared by the Air Force Association (AFA) and issued in September of 1988 (75). The AFA study briefly described the ongoing legislation to restrict the use of fixed-price type development contracts (75:25-26). An examination of the AFA study reveals that the description was limited to paraphrasing key language from the draft legislation. The report gave no analysis of either the legislation or the issue the legislation addressed.

Congressional Involvement in the Selection of Fixed-Price Type Contracts for Weapon System Development. As stated earlier, the statutory requirements for the selection of contract type has given great latitude to government and industry negotiators (12:706). Recently Congress has shown its concern about the effects of using fixed-price type development contracts, however, and it has added statutory requirements as part of the FY 1988 and 1989 legislation for the DoD. The legislation in this area is new, and no discussion about the legislation or its implementation has yet appeared.

Literature Review Summary and Conclusions. This review has examined the available literature on using fixed-price type contracts

for weapon system development. After introducing risk and the methods of its description and allocation, the review presented key parts of the regulatory guidance that government and industry negotiators use when choosing a contract type. The review dealt with the guidance for using fixed-price type contracts, and it described the various fixed-price type contracts that are used. The review also discussed the nature of development work. This discussion focused on whether fixed-price type contracts were appropriate for development work. The writer's conclusion from this discussion is that in a fixed-price development contract, an imbalance between the pricing provisions, contract clauses, and the type of work can be created by pricing provisions which put total liability on the contractor for all costs above a certain amount, by contract clauses which condition payment on successful completion and provide for a default termination in the event of failure, and a SOW and specification whose terms may be imprecise and risks difficult, at best, to quantify. The literature review also revealed that no source is available which addresses the general issue given earlier in the chapter.

Specific Problem

The specific problem is that, as determined from the preceding literature review, no documented research is available which addresses the recent statutes on fixed-price type development contracts, much less the general issue given earlier on the regulatory implementation of these statutes. The solution is to provide an analysis of the statutes on the use of fixed-price type development contracts. The analysis would focus on the nature of additional implementing regulation and the two criteria of realistic pricing and the allocation

of risk. This analysis would be available to the DoD acquisition community through an information service such as DTIC or DLSIE.

Investigative Questions

In this analysis, information will be gathered and analyzed to answer the investigative questions given below. The answers to these questions would then give the basis for further implementation of the statutes.

1. Should the military departments supplement the DFARS with additional, more restrictive regulatory guidance?
2. What is "realistic" pricing?
3. What is an "equitable and sensible" allocation of risk?

Discussion. "Anything that is written may present a problem of meaning and that is the essence of...construing legislation" (47:528). Three levels of certainty can exist when applying a statute's terms to a particular combination of facts, judgments, or both (35:10; 36:49; 50:437). These three levels, from highest to lowest certainty, are "precisely measured terms," "abstractions of common certainty," and "terms involving an appeal to judgment or a question of degree" (50:437). Terms at the highest level of certainty, an example of which is "the current President of the United States," provide a unique reference (35:10; 36:49). Of lower certainty are terms such as "male" and "natural child" (35:10; 36:49). These terms have a margin of doubt which is wider (35:10; 36:49). Examples of terms at the lowest level of certainty are "reasonable," "proper," "sufficient," "suitable," "necessary," and "near" (35:10; 36:49; 50:438). These often have the characteristic of vagueness accompanied by a very wide, or even indefinite, margin of doubt (35:10; 36:49; 50:438). The

uncertainty on the lowest level is caused by the "open texture of concepts" (35:10; 36:49).

A statute may have vague terms because often a legislature simply cannot provide sets of specific instructions for executive or judicial officials to use when dealing with particular combinations of actual experience (67:738). Modern society survives by a myriad of complex, interdependent relationships between individuals and groups (20:627). These relationships in a wide variety of subjects can combine to create an infinite number of different situations (15:415; 20:627). Legislatures seek more and more to control not only the inner intricacies of subjects and relationships but also the interaction which occurs at their points of contact (20:627). Unable to foresee the complexities of new variables brought under statutory control, the legislature resorts to prescriptions whose terms may be vague (20:627).

Vague terms in a statute may also result when the powerful political, social, or economic interests, competing in the legislative forum, have difficulty in agreeing with each other (15:415-416). To express the desired legislative goal clearly and set out the shared rights and obligations in terms whose margins of doubt are narrow may even be impossible (15:415-416). To come to a closure, the legislature resorts to vague words (15:416). The vagueness allows a greater freedom of action and increases the chances for agreement (15:416).

On other occasions, the legislature may be able to achieve more benefits by use of vague terms which require an appeal to judgment. One such benefit is a statute that is general in its operation because its terms are adaptable to varying circumstances (67:738). This wide application requires the use of such terms as "deadly weapon" and "immoral purpose" (67:738). Another benefit is the opportunity to

rely on the discretion of officials to resolve the doubts of meaning when they administer the statute (36:50). From time to time, the legislature expressly delegates power to the executive branch to make regulations (20:627). As the complexities reveal themselves more fully under the scrutiny of administration and the lessons of experience, subordinate levels of the executive branch may supplement the regulation with guidance of their own (20:627-628). Section 807 of P.L. 100-456 is an example of such a delegation of power to the executive branch.

Whatever the reasons which occasioned either the resort to or the choice of vague terms, the resulting high level of uncertainty has both disadvantages and advantages. From the point of view of consistent application, these terms do not give certain and equal operation (50:438). These terms may also tempt an administrator to take the benefit of the doubt (50:438). These disadvantages increase the risk of error and misjudgment and add the specter of attendant consequences (50:438). On the other hand, vague terms offer the advantage of ease of formulation (50:438). They adapt easier to different circumstances (50:438). A final advantage is that vague terms provide the administrator the desirable freedom of action needed for intelligent cooperation (50:438). Using this last advantage as the starting point, the task of implementing a statute has the challenge of finding a way to apply universal, vaguely expressed concepts in the general directions of the statute to particular combinations of facts, judgments, or both (67:738; 68:961). The task involves narrowing the margin of doubt so as to achieve a higher level of certainty (104:12). Inasmuch as statutes contain terms with varying levels of certainty,

this is the task most often encountered by those who must implement statutory policy (68:962, 964).

Chapter Summary and Preview of the Research

This chapter began by providing the background and the general issue for this thesis. The literature review examined the use of fixed-price type contracts for development and the level of research completed and available to address the general issue. Based on the outcome of the literature review, this chapter identified the specific problem. The three investigative questions and clarifying discussion gave direction to the analysis which would solve the specific problem and address the general issue. With the research defined by identifying a need and the approach to satisfy the need, the next step now is to explain how the approach will be followed. This will take place in the next chapter. The results of applying the methodology will be in the third through the sixth chapters. The seventh chapter will provide findings and conclusions.

II. Methodology

This chapter first gives the basic assumptions which affect the methodology used for the research. The second section discusses the sources of information and gives the collection procedures for retrieving the material from these sources. The third section explains the integrating approaches which are applied to the collected information. Each section examines at length a major part of the methodological structure--foundational assumptions, kinds of information, and analytical methods--through a combination of definitions, general historical background, and commentary in scholarly literature. The goal is to prepare the reader for the following four chapters which present and analyze the legislative history of each of the four statutes whose texts appeared at the beginning of the first chapter.

The material for this chapter comes from a comprehensive examination of the law review literature from the last 90 years and of current legal texts. Two bibliographies which served as entry points into the field of literature on the subject of statutory interpretation were "Legal Writings on Statutory Construction" by Paul H. Sanders and John W. Wade and "Bibliography on Legislative Analysis and Drafting" by William P. Statsky (101:569-584; 104:205-210). The chapter concludes with a summary and discussion of the general characteristics of the analysis.

Basic Concepts

According to the Columbia Encyclopedia, a government is a sovereign system for the control of a society (18:852). Its purpose is

to see that society's needs for defense, justice, order, welfare services, economic well-being, and education are fulfilled (18:852). To achieve these purposes, a government creates policies (18:852). These policies, in a democratic society, should be based on discussion and vote (19:292). A democratic society is composed of diverse people, however, and they cannot speak as a group except by means of organizations chosen for that purpose (20:624). The members of a democratic society, therefore, choose from among their number certain people to exercise governmental power, through whom the members can determine the character of the society in which they live and the government and its policies which affect their lives (57:250). Representative democracy thereby achieves by participation of its citizens what other systems of societal control achieve at the risk of interfering with the rights of individuals (19:293).

In the representative democracy of American society, power is constitutionally shared by three central branches (36:7). Of these three branches, the legislature is best suited to act on behalf of the people in creating policies to govern common life, solve broad problems, and control events and groups of individuals or things (20:624,625; 47:545; 104:7). The legislature is the forum which creates or adjusts policies for societal organization and conduct based on the evaluation of competing interests and current needs and aspirations (21:374; 57:250). Public pressure, exerted by public opinion and recurring elections, greatly affects the legislature (19:292). Through this pressure on the legislature, American society as a whole determines the policies for maintaining control and influencing the behavior of people (9:131; 84:35).

Not only is the legislature best suited to create societal policy, but its grant of power to create or adjust this policy is supreme (36:7). This grant of power does not suggest that the legislature is in any way sovereign over the executive or judiciary; rather, the legislature's policies are directive in nature because, under the Constitution, the legislature's duty is to create policy, or to legislate (84:36; 97:405-406). This duty derives from the delegation of legislative power to the Congress by the states through their ratification of the Constitution and its amendments (24:205). As a result, the executive and the judiciary must defer to the legislature (36:8). This supremacy, expressly granted by federal and state constitutions, is commonly accepted today (36:9).

Another assumption of American government is that the legislature's policies become supreme, effective law only when these policies are expressed according to the governing constitution (36:9). The only proper way for a legislature to create law is by developing and passing, in the specified way, a statute or its procedural equivalent (36:9,11). Statutes "are the expression of policy arising out of specific situations and addressed to the attainment of particular ends" (47:533). A statute results from the compromise among powerful, competing forces and is a directive to executive and judicial officials to accomplish a definite political, social, or economic goal (97:407; 116:360). While the legislature that enacted the statute has the constitutional right and power to set goals as desirable for society, it cannot itself force compliance with the statute (45:1270; 97:398). The legislature must delegate that task to the other two central branches (45:1270). This delegation creates the duty of the executive and judicial officials to loyally obey and intelligently

administer the statute until the legislature amends the statute by the same process which created it (97:398; 116:360).

Thus, the Constitution of the United States conceives of the function of making general policy separate from and supreme over the functions of implementation (70:886). The policy-making function, commonly granted to a legislature, assumes that a vehicle exists for making known the legislature's desires and hopes to those who implement the policy (70:886). That method is the statute in valid form whose content is constitutionally sound (70:886). From these conceptions results a methodological approach that statutory implementation should emphasize the desires and hopes of the legislature which created the statute (70:886).

Sources of Information

Historical Development up to 1900. The value of consulting the lawgiver to determine his desires and hopes was recognized at an early date. In the Rhetoric, Aristotle noted the persuasiveness of arguments which rely on the authority of the lawmaker's wishes (3:2191).

According to Professor Max Radin of the University of California School of Jurisprudence, many of the common approaches to statutory interpretation originate from standard manuals of rhetoric current in ancient Greece and Rome (98:37). Several centuries later, in the early Middle Ages, Justinian's and Theodosius' written codifications of Roman law spread across continental Europe (93:ix). These written enactments and codes gradually gained a higher position over the unwritten law of custom and cases (93:ix). In England, however, the influence of canon and civil law on secular law was less than in continental countries (93:ix). The law as unwritten custom declared by the courts remained a

strong influence (93:xi). In medieval England, judges created statutes and voted for their adoption (19:293-294). As a result, those who created the statute as lawgivers were also those who implemented the statute as judges (19:294). They were familiar with what the statute's language should yield to achieve the desired purpose (95:316).

The need for a theory of statutory implementation arose after the creation of a separate legislature which had the right to enact statutes (19:294). The division of policy creation and implementation between two government organizations brought about a need to bridge the gap (19:294). The solution was suggested in the earliest English treatise on statutory interpretation, A Discourse upon the Exposicion & Understandinge of Statutes: With Sir Thomas Egerton's Additions, published in 1563 (92:242,243). Professor Radin wrote that in the seventh chapter of this treatise, the Elizabethan writer suggests that direct testimony of the lawmakers was useful in case of doubt about a statute (98:36). "And so, in our dayes, have those that were the penners and devisors of statutes bene the grettest lighte for exposicion of statutes" (1:150-151).

The early judicial history of the United States reveals much of the same open attitude toward these aids which are external to the text of the statute itself. Mr Justice Felix Frankfurter, writing for the Columbia Law Review in 1947, quotes Chief Justice Marshall from a United States Supreme Court opinion issued in 1805: "Where the mind labours to discover the design of the legislature, it seizes everything from which aid can be derived" (47:542). Professor Richard R. Powell of the Columbia University School of Law, writing for the Indiana Law Journal in 1939, found that these external aids were used in early Supreme Court opinions to verify a conclusion already reached on some

other basis of fact or judgment (95:319-320). He gives an example from a Supreme Court opinion issued in 1816, in which Mr Justice Story ruled on whether the Court was permitted to review a decision of the highest court in Virginia (95:320). Professor Powell provides an excerpt from Mr Justice Story's opinion, an examination of which shows that the Justice relied on the declarations of men who were not only members of the legislature when the Judiciary Act was submitted to the deliberations of the first Congress, but who also played an important role in creating the Constitution (95:320).

This open attitude toward the use of materials which are extrinsic to the text of the statute did not continue. Professor Powell notes that, in 1819, three years after the issuance of Mr Justice Story's opinion, Chief Justice Marshall stated the interpretive rules which would be operative until late in the 19th century (95:320). Professor Powell provides an excerpt from Chief Justice Marshall's opinion, an examination of which shows that the Chief Justice believed the proper guides for interpretation were chiefly limited to the words of the statute's text itself (95:321). The obvious meaning of a word could not be disregarded unless the result was a "monstrous absurdity" or it conflicted with another part of the statute (95:321). Professor Powell implies that, throughout most of the 19th century, the courts tended to rely less and less on aids extrinsic to the text of the statute as guides for implementation (95:321).

According to Professor Powell, the Supreme Court began to gradually adopt a more favorable view of extrinsic aids beginning in the late 19th century (95:322). A milestone which marked a new liberality in statutory implementation was an 1892 United States Supreme Court decision implementing a statute enacted in 1885 (95:322).

This statute prohibited anyone from assisting or encouraging in any way a person from another country to immigrate to the United States, under contract, to perform labor or service of any kind (95:322). The issue before the Supreme Court was whether the Church of the Holy Trinity of Brooklyn, New York, having contracted with an English clergyman, could then bring him to America to be the rector of the church (95:322). The lower courts had ruled against the church; however, the Supreme Court overturned these rulings and decided in favor of the church (95:322). Professor Powell provides an excerpt of Mr Justice Brewer's opinion (95:323). The Justice relied on testimony and petitions presented to Congress (95:323). Mr Justice Brewer also used the report of the Senate Committee on Education and Labor (95:323). On the basis of this information from the legislature, which showed that Congress enacted the statute to reduce the influx of unskilled manual labor, Mr Justice Brewer applied the statute, whose text was without internal conflict or ambiguity, in favor of the church (95:323). Although such a change did not maintain a steady momentum in the decades immediately following this decision, the change began a trend of relying more and more on such extrinsic aids as legislative histories in the federal court's application of statutes (69:4).

Definition of a Legislative History. A legislative history is a by-product of the process which creates a statute (17:287; 42:11). That process begins when a legislator introduces a bill; continues through hearings, publication of committee reports, debates before the general assembly of each legislative body, amendments, and resolution of differences; and, finally, concludes with either the President's approval or repassage over a veto (42:12). Many points in this long process offer the opportunity for authoritative, official explanations

of the new statute (42:11). These explanations are valuable for the increase of information and ideas related to the statute (61:341; 66:17). Use of this increase as a basis for implementation reduces the chance of relying on prejudice or hunch (20:635). This basis is especially valuable when the information and ideas make up the combination of facts and judgments on which the legislature enacted the statute (67:762). These explanations that come out of the process which created the new statute make up the legislative history as defined by courts and lawyers (42:12).

A legislative history, then, is a compilation of the information on which legislators relied during the process of creating a statute (42:1; 64:168). Its sources are the varying texts of the legislation and the resulting public law, the committee reports, hearings, debates, and executive documents (17:325; 42:33-40; 64:169-172; 96:45-48,51). A document whose source is outside the government occasionally provides valuable insight into the history of a particular statute and may become a part of the legislative history, especially when other parts of the history make clear that the legislature relied on the outside source's report (42:32,34). The history of provisions on the same subject in several statutes may also provide useful information (42:17). For example, the history of an earlier legislative text can be useful in interpreting a later act or at least giving the later act a historical perspective (42:17-18). On the other hand, the interpretation of an earlier legislative text can rely on the history of the later act (42:18; 110:175). A researcher must examine all available materials rather than gather only part of the information and rely on single statements or even a single source (42:16,17). The use of all available information is most important (42:16-17).

Evolution of the Use of Legislative Histories as Evidenced in the Law Review Literature. An examination of the law review literature of the United States reveals that commentary on the use of legislative histories began in the early years of this century. The first reference occurred in the article "Interpretation of Statutes," published in a 1917 issue of the University of Pennsylvania Law Review (49). In this article, Professor Ernst Freund noted very briefly that the history of law and legislation are the notable aids to interpretation (49:213). However, a definition of the content of a legislative history did not appear until 1925. In that year, the University of Pennsylvania Law Review published Mr Clarence A. Miller's article "The Value of Legislative History of Federal Statutes" (85). Mr Miller used opinions from the federal courts to describe the use of legislative histories to implement statutes. The article explained how sources such as varying texts of the legislation, committee reports and hearings, and statements of the committee chairman or other person in charge of the bill during general debate provided rationale on which the court based its decision (85:164-170). Dean James M. Landis, of the Harvard Law School, provided the next contribution to the development of this subject (70). In 1930, Dean Landis wrote that the "records of legislative assemblies once opened and read with a knowledge of legislative procedure often reveal the richest kind of evidence" (70:888). He concurred with Mr Miller on the favorable value of the sources of legislative history and suggested that the statement of the person who proposes an amendment to the statute at issue is a valuable contribution as well (70:889). He concluded his article by stating that "hopeful developments in the science of statutory

interpretation must be in the direction of properly evaluating the effectiveness" of these kinds of aids (70:893).

Of the eight articles dealing principally with legislative histories published in the decade following Dean Landis' article, three of them appeared in the fifteen month period between February of 1932 and May of 1933 (11; 48; 59). In one of these articles, Mr Markley Frankham pointed out that official communications from the executive branch should be added to the basis of information on which the legislature acted (48:175). Mr Frankham also observed that the general debate in the legislature, when used as evidence to determine the circumstance the statute was enacted to correct, is an indirect source for statutory interpretation (48:176). The writers of all three articles--Professor Horack, Professor Chamberlain, and Mr Frankham--restated the favorable value of sources discussed in the earlier articles (11:85-87; 48:174-177; 59:128-129).

Four of the eight articles appeared late in the decade and in the early months of 1940 (67; 69; 95; 106). In the first of these articles, Mr Jacobus ten Broek of the University of California School of Jurisprudence examined the United States Supreme Court's use of general debates in the legislature for statutory interpretation (106:326). Based on his examination, Mr ten Broek restated Mr Frankham's observation that general debate in the legislature can be an indirect source of statutory implementation (106:330-331). In another article, Professor Powell used opinions from the courts of England, the United States, and the state of Indiana to examine the use of the sources of legislative history in statutory interpretation (95:310). Professor Powell concluded that the use of these kinds of materials is justified in practically every circumstance (95:336).

Mr Harry Wilmer Jones of the Columbia University School of Law wrote two of the four articles (67; 69). In the first article, Mr Jones examined the Supreme Court's use of interpretive techniques (69). His conclusion restates that of Professor Powell: courts should freely use all sources early on to become familiar with the statute's legislative background (69:23,25). In his other article, Mr Jones turned his attention to the federal judiciary's use of interpretive approaches which used extrinsic aids (67). He wrote that the sources of legislative history are valuable in determining the legislators' position on a particular interpretive issue as well as the purpose sought to be achieved (67:742,744,751,754,756-757). The writers of these four articles, like the three writers whose articles appeared earlier in the decade, restated the value of the sources discussed by Mr Miller and Dean Landis.

The last of the eight articles appeared in 1940 (30). In this article, Professor Frederick de Sloovere of the New York University School of Law, like the six writers discussed in the two paragraphs above, favorably restated the position of Mr Miller and Dean Landis as to the value of the sources of legislative history (30:528). In addition, Professor de Sloovere suggested a division of these sources into two categories. The first category is the source which describes the varying texts of the legislation (30:545). The remaining sources are in the second category and are the documents not part of the text of any proposed statute or the enacted statute itself (30:545). These sources in the second category provide explanations of the circumstances which brought about the statute and the statute's probable effects and purposes (30:545). He suggested two criteria which would answer Dean Landis' challenge to the legal community made

ten years earlier "of devising means of properly evaluating the effectiveness" of these kinds of aids (70:893). Professor de Sloovere suggested that sources should be relevant to the issue at hand (30:544). He also suggested that the sources be reliable in that the source provides information that was available to other legislators for their consideration during the legislative process (30:544,547). Professor de Sloovere not only summarized the conclusions reached during the ten years of law review comment since the publication of Dean Landis' article, but also offered means to categorize the sources of legislative history. He also offered a way to evaluate the effectiveness of these sources in response to the goal set forth at the end of Dean Landis' article.

Law review articles published between 1940 and 1950 restated previous conclusions and commented on the use of legislative history sources as a standard practice. Professor Radin, an early, vigorous opponent of using legislative materials, now wrote favorably on their value (97:411). By the end of the decade, law school professors, members of the United States Senate, and justices of the United States Supreme Court had contributed articles to the law review literature which testified to the widespread reliance on legislative history sources (21:380; 41:589; 47:543; 58:387; 61:341; 103:190). In a 1950 article, Professor Horack of Indiana University wrote that the use of these sources were "...as common and unquestioned as the use of judicial precedents. Further law review argument in favor of their use seems hardly needed; the practice is now firmly settled judicially" (58:387).

Professor Jorge L. Carro and Mr Andrew R. Brann surveyed the United States Supreme Court's use of legislative materials in a 1982

Journal of Legislation article entitled "Use of Legislative Histories by the United States Supreme Court: A Statistical Analysis" (10). They examined all of the Supreme Court opinions from 1938 until 1979 to determine whether an increase in the use of these materials had occurred during that time (10:284). They found a steady increase in the total citations to these sources: 1081 citations from 1938 to 1947, 1278 citations from 1948 to 1957, 1732 citations from 1958 to 1967, and 3374 citations from 1968 to 1979 (10:291). This increase occurred while the number of Court decisions remained relatively constant (10:289). Professor Carro and Mr Brann also wrote that authors of current legal textbooks believe that the use of legislative histories is a regular part of a lawyer's work (10:284). The following paragraphs rely heavily on these authorities to describe each of the sources of legislative history. The description will first address the varying texts of the legislation and then take up in turn each of the explanatory sources.

Definition of the Sources of a Legislative History.

Varying Texts of the Legislation. In the Congress of the United States, legislation may be proposed in one of four principal forms, two of which, the simple resolution and the concurrent resolution, do not have the effect of law (77:10; 96:12). The simple resolution deals with matters of interest to only one of the houses of Congress, such as procedural matters, the expression of opinions, and the conduct of business (77:10-11; 87:136; 102:169; 212:7). Specific examples of these purposes are the conditions for general debate and amendment of a bill reported out of a committee, the expression of cooperation or concern on matters of global importance, and the creation and dissolution of investigative committees (77:10-11).

Simple resolutions originating in the House have the designation "H. Res." followed by a number, and simple resolutions originating in the Senate have the designation "S. Res." followed by a number (87:136; 102:169). While the simple resolution would affect only one house of Congress, the concurrent resolution deals with matters of interest to both houses of Congress (77:11; 87:135; 102:170; 212:7). Similar to the simple resolution, the concurrent resolution is used for procedural matters, expressing common opinions, and conducting internal business (77:11; 87:135; 102:170; 212:7). Specific examples of these purposes are the adjournment for more than three days, the legislative veto, and the creation and dissolution of joint committees (77:11-12; 102:170).

Concurrent resolutions which originate in the House have the designation "H. Con. Res." followed by a number, and concurrent resolutions which originate in the Senate have the designation "S. Con. Res." followed by a number (87:135; 102:169). To be binding, the concurrent resolution must be passed by both houses of Congress, and, like the simple resolution, it does not have the effect of law (77:11; 87:135; 96:12; 102:170; 212:7).

The other two forms, the bill and the joint resolution, have the effect of law upon enactment by Congress and signature by the President or re-passage over the President's veto (212:5,7). The most common form of legislation is the bill (77:9; 87:132; 96:11; 102:169; 212:6). Bills which originate in the House or Senate have the designations "H.R." or "S.", respectively, followed by a number (87:132; 96:11; 102:169). Almost all proposals for foreign and defense authorizations and appropriations use the bill as the proposal format (77:9). The exception to this occurs when legislation for continuing resolutions or supplemental appropriations is introduced (77:9). In this case, the

form often used is the joint resolution (77:9). Joint resolutions are used for limited, incidental, or unusual legislative purposes (77:9; 87:132). Joint resolutions which originate in the House or Senate have the designations "H.J. Res." or "S.J. Res.," respectively, followed by a number (87:132; 102:169). Joint resolutions differ from bills only in their legislative objectives; there is little practical difference between the two forms, and the legal effect of a joint resolution is identical to the legal effect of a bill (87:132; 212:6).

Legislation may be amended many times as it goes through the enactment process (17:290,298). Often legislation will have at least three printed versions--as introduced, reported, and enacted--in each house of the legislature, and yet another version as the result of conference committee action (17:290; 64:171). Upon completion of the legislative process, the Office of the Federal Register of the General Services Administration (GSA) publishes the new statute as a "slip law" (87:148). The goal of slip law publication is both speed and accuracy (96:21; 212:46). Each public law is printed by photoelectric offset press from the original enrolled bill and then distributed as a separate, unbound pamphlet (87:148; 212:46). After each session of Congress, the GSA publishes a chronological arrangement of the slip laws in bound volumes (87:148; 96:21; 212:46). This collection is the first permanent version of the new federal legislation and is called the United States Statutes at Large (96:23; 102:211; 212:46). Any court will accept these volumes as proof of a law contained in them (212:47).

Committee Reports and Related Documents. The most important source of explanatory information is the report of the standing committee that evaluated the bill and reported the findings

and recommendations to the legislative body (8:215; 17:301; 42:30,33; 52:78; 64:170; 212:15). The committee plays the key role in the process of creating legislation that affects areas under its jurisdiction (42:26; 86:224; 212:9). It publishes its recommendations and supporting rationale in a report which legislators may read for information on the purpose, content, and effect of the new legislation (8:210; 42:28; 90:677; 52:78; 212:15). Reports analyze each section of the proposed legislation (52:78; 118:101). If several bills on the same subject are referred to the same committee, the committee may choose to combine these bills into one piece of legislation (118:101). The report will mention this amalgamation and give the numbers of the bills that were combined (118:101). The report may also summarize the results of hearings and provide supplemental, additional, and minority views (52:78; 118:103). All parts of the explanation in a standing committee report are very influential; however, if a conference committee report omits a significant part of the standing committee's explanation, the omitted part is not as influential as the parts of the explanation which are carried forward into the conference report (117:73,81). A report to a legislative committee from an ad hoc committee, official agency, or industry or citizen group on legislation they propose has much the same significance as a committee report, especially when the legislative history indicates that the lawmakers and their staffs relied on these reports (42:34; 110:175). Both types of reports, those that originate in legislative committees as well as those from other sources, give authoritative statements of the proposed legislation and are the most reliable explanatory source of legislative history (8:214-215; 42:28-29).

Committee Hearings. A congressional committee or subcommittee conducts hearings to gather information about introduced bills and then publishes the entire proceedings, with the exception of all information given in testimony which must be protected for reasons of national security (42:28; 64:171; 77:89; 118:86). Hearings are the primary way to provide for an open forum for legislators and carefully chosen witnesses to offer opinions and recommend changes to the proposed legislation (16:889; 42:29; 64:171; 77:24). Often the hearing is used to make a public record of information already given to the committee (109:272; 117:67). Hearings on defense spending occur in two parts (44:66). In the first part, the posture hearings, the highest ranking military officers and civilian officials of the DoD provide testimony on achievements, overall policies, and goals (44:66). In the second part, the services' deputy chiefs of staff and assistant secretaries present and discuss budget requests (44:66). The chief topics are financial administration and the status of current projects (117:61). These topics are examined in light of the agency's requested budget for the coming fiscal year (117:61). Witnesses who represent major business interests or who are experts in their field can also set forth their views (42:28; 117:61). Private citizens can file statements (42:28). Although the testimony of witnesses are statements of opinion, hearings are valuable for legislative analysis because key governmental and interest groups and even congressional factions clarify their positions (77:81). A study of the testimony and the exhibits and briefs submitted for the record gives insight into the policy alternatives, current public opinion, propositions underlying the bill, and reasons why Congress wishes to adopt or not adopt certain language (17:293; 64:171; 77:81).

As an explanatory source of legislative history, hearings rank next in importance after committee reports (17:298). Even though hearings often provide useful information, they are not a record of congressional deliberations (17:298; 64:171). They are statements of opinion instead, and the dialogue between the legislators and witnesses must be read with this in mind (96:47). When the witnesses wrote and actively sponsor the particular legislation whose provision is being examined, the courts have given their hearing presentations some weight (42:37). Usually, the hearings are most useful as a source of information on the statute's purpose or as background material which clarifies the circumstances which brought about the enactment of the statute (20:654; 30:550-551; 67:763). Hearings are a way to verify an interpretation based on other sources of legislative history (42:28,37).

Congressional Debates. Debate over new legislation usually occurs after the committee has reviewed the hearing results, held several "mark-up" sessions during which the bill's language is agreed upon, published the committee report, and reported the bill to the legislative body (17:302; 77:28-29). Action on the floor of each house gives all legislators the opportunity to amend the bill as reported by its sponsoring committee (17:302). During this action, committee members argue for enactment and other legislators justify why the bill should be revised (17:302). Legislators may clarify unclear or disputed provisions (17:302). While political maneuvering is evident in any such action, debates do allow for useful explanations of goals and reasons (42:23).

Although some authorities have questioned the value of these debates as evidence for interpreting the resulting statute, courts have

used statements of the bill's sponsors, especially when the stated intent was to explain the bill's purpose (17:308; 42:35; 64:170). The views of sponsors and supporters of the legislative body which originated the bill have greater influence than the statements of their colleagues in the other legislative body (42:35). The views of individual legislators may have a cumulative effect if they show that the participants concur on the provision's purpose and effect (42:36). Usually, the views of opponents have little value (42:35). Views are not useful if a legislator inserted them into the Congressional Record after enactment (42:36). The varying quality of the material diminishes the value of debates; nevertheless, they are an integral part of any legislative history and are frequently used when they have a clear and decisive relevance (17:308; 42:35; 64:170).

Executive Documents. Executive documents are another part of a legislative history (17:290; 42:29,39; 64:171). Recommendations from the executive branch result in the introduction of many bills (17:290). A Presidential message or executive agency memorandum may accompany the proposed legislation to explain the purpose of the people who created it (17:290). An example is the State of the Union message given to Congress when the President submits the Unified Federal Budget (17:290). The President sends many messages which explain and encourage Congress to enact specific laws, and the President also issues messages when enactments are either vetoed or signed into law (17:290). While all these documents reveal executive interpretation, they are useful and may lend perspective and background material in a legislative history (17:290; 42:40).

Methods for Collecting the Information

Organization of Sources. Most congressional publications which provide the material for a legislative history are organized according to the number of the Congress which originated them (42:22). The adoption of the United States Constitution in 1789 marked the beginning of federal legislation, and the 1st Congress met from 1789 to 1791 (96:11; 102:137). Each Congress thereafter is serially numbered, ending with the current Congress, the 101st, which meets from 1989 to 1991 (42:22). A two-year term, derived from the length of time that a member of Congress is elected to the House of Representatives, has two sessions, one for each of the calendar years of the two-year term (42:22). Each committee report, then, has a designation consisting of the number of the Congress followed by an individual number assigned consecutively as the report is filed (52:79; 212:15). Public laws use the same numbering system as committee reports (96:25). A bill has an individual number assigned by the house of Congress which originated the bill (77:9). Bill numbers are consecutive in the order of introduction and do not include the number of the Congress (52:76; 17:293; 87:132). Hearings, on the other hand, have no uniform numbering system within the legislative branch (17:298,302; 87:139). The debates appear in issues of the Congressional Record (17:302; 64:172). An examination of these daily issues shows that each volume consists of the issues published for one session of a two-year term.

Retrieval of Sources. The information retrieval process differs slightly, depending on whether the legislation came from a prior or the current session of Congress. The following discussion will first describe the retrieval process of legislative histories from

prior sessions of Congress. The second part of the discussion will describe the differences if the legislation is from the current session. This discussion is based on both published sources and research experience.

Materials from a Prior Session. The first step is to identify the number of the public law whose history is to be researched and the number of the session in which the law was enacted. Once the public law and session numbers are known, the researcher then finds the public law under its number in the "History of Bills Enacted into Public Law" in the session's final issue of the Congressional Record or in the first issue of the Congressional Record from the following session (64:174). The "History" presents in tabular format the bill number, the dates of each important event in the journey of the bill through the legislative process, and the numbers of the committee reports for each public law. The researcher first finds the date in the table on which the bill became law and then locates the earliest bi-weekly issue of the Congressional Record Index published after this date. Under the bill number in this issue of the Index, the researcher will find a comprehensive, detailed schedule of events from introduction to enactment of the particular bill. This schedule is indexed to specific pages in the Congressional Record which contain the text of the debates (40:1284). The index also refers the researcher to the pages in the Congressional Record which reprint all of the amendments which would provide the varying texts of the legislation. The Congressional Record may reprint the text of the bill as introduced and as reported by committee and important executive communications such as veto messages (40:1283). After locating the

committee report number in the "History," the researcher then finds the committee report in the U.S. Congressional Serial Set at a library designated as a depository for government publications (37:174; 40:1283,1284). The committee report will indicate whether committee hearings were held (40:1284). The researcher consults the Congressional Information Service to find out whether the hearings have been published and then may obtain them from a library that is a government document depository (37:174).

Materials from the Current Session. To locate legislative history sources for legislation from the current session, the first step is to identify the bill number. The Commerce Clearing House (CCH) Congressional Index provides weekly updates on the status of introduced bills in both the Senate and the House of Representatives (64:175). Examination of this source reveals that the CCH Congressional Index has one volume for each numbered Congress consisting of two parts, one for each house of Congress. The researcher finds the bill number in the "Status of House Bills" or "Status of Senate Bills" section of the respective part. The "Status" section provides a listing, by bill number, of the events and dates in the history of introduced bills. After finding the date of the most recent action, the researcher then locates the earliest issue of the Congressional Record Index published after this date and follows the same steps given in the previous paragraph for using the Congressional Record. Once the legislative history documents have been identified, the researcher can then request copies of the committee reports and bills from the House or Senate Document Rooms or the Government Printing Office (GPO). Published hearings are available from the

committee who originated these documents or the GPO. The researcher must remember that copies of reports, bills, and hearings are published in limited quantities and quickly go out of print. Swift retrieval is necessary once these copies are available. If the published quantities are exhausted, the researcher can obtain copies from a library as described in the previous paragraph.

Integrating Approaches for the Investigative Questions

The last section discussed the use of legislative histories as the source of information which would reflect the desires and hopes of the legislature which created the statute. This section presents the integrating approaches which are applied to the information. These approaches synthesize the information into findings on the trends of the textual evolution from the varying texts of the legislation or into findings on statements of purpose from the explanatory sources of a legislative history. Each synthesis, or finding, like the information from which it was derived, would reflect the desired policy direction from the legislative branch. From this direction, answers to the investigative questions may be inferred.

Investigative Question #1: "Should the military departments supplement the DFARS with additional, more restrictive regulatory guidance?"

The Integrating Approach of Textual Evolution. The primary source of information for this investigative question is the varying texts of the legislation and the resulting public law. Relating these to each other with respect to time then creates a textual evolution.

Textual Evolution in the Law Review Literature. The treatment of this approach in the law review literature is extremely

sparse when compared to the treatment of the integrating approach of purpose used for investigative questions #2 and #3. The earliest contribution to the approach of textual evolution appeared in a 1930 article by Dean Landis (70). He wrote of the interrelationship of one text with another.

Successive drafts of the same act do not simply succeed each other as isolated phenomena, but the substitution of one for another necessarily involves the element of choice often leaving little doubt as to the reasons governing such a choice. (70:889)

The other contribution in the law review literature came from Mr Jones in a 1940 issue of the Iowa Law Review (67). Like Dean Landis, Mr Jones also wrote of the "element of choice".

The language of a legislative proposal does not remain constant throughout; new drafts may be substituted for the original bill...The alterations made in a bill during the course of its passage normally reflect a deliberate choice of the legislators as to the proper statutory direction. (67:754)

Most of the commentary on this approach results from a review of current legal texts rather than a survey of the law review literature.

Textual Evolution in Current Legal Texts. As stated earlier, bills may be amended many times as they go through the legislative process (17:290,298). Often a bill will have at least three printed versions--as introduced, reported, and enacted--in each house of the legislature, and yet another version as the result of conference committee action (17:290; 64:171). As the legislators add or delete language of a bill, their actions show they have made a legislative choice (17:293). Figure 1 on the following page shows a simple example of these kinds of revisions to the text of a bill in which the deletions are struck through the additions are printed in italic. This example is taken from a text of H.R. 4781, the bill which

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION,

NAVY

For expenses necessary for basic and applied scientific research, development, test, and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, as authorized by law; ~~(73) \$9,136,405,000~~ \$9,300,614,000, to remain available for obligation until September 30, 1990 ~~(74)~~ : *Provided*, That \$1,000,000 shall be made available for personnel and other expenses for the Institute for Technology Development, as a grant, for the National Center for Physical Acoustics ~~(75)~~ : *Provided further*, That funds made available for the SSN-688 Class Vertical Launch System and the ~~AN/BSY-1~~ Submarine Combat System programs may not be obligated or expended until thirty days after the reports required by section 211(e) of the National Defense Authorization Act for Fiscal Years 1988 and 1989 (Public Law 100-180) are submitted to the Committees on Appropriations of the House of Representatives and the Senate.

Figure 1. Example of Revisions to a Text of Legislation
(Reprinted from 183:35)

would later become P.L. 100-463, the FY 1989 DoD Appropriations Act (183). Amendment 73 increased the Department of the Navy's (DoN) research, development, test, and evaluation (RDT&E) appropriation from \$9,136,405,000 to \$9,300,614,000. Amendment 74 deleted the funding for the Institute for Technology Development, and amendment 75 deleted restrictions on the funding for the SSN 688 Class Vertical Launch System and the AN/BSY-1 Submarine Combat System programs.

A comparison of the different printings of the same bill with each other, and with the text of the law as passed, reveals a series of decisions and provides valuable insights (64:169). In implementing statutes, the United States Supreme Court has relied on the fact that the legislature adopted a revision, especially when the original language had a contrary effect when compared to the new language (42:38). The Supreme Court has rejected a possible implementation of a statute if the textual evolution shows a revision was rejected whose language would have supported the possible implementation (42:38). The Supreme Court has also ruled as insignificant the rejection of an unnecessary revision (42:38). By means of the statute's textual evolution, the Supreme Court has shown legislative consensus at different times in the enactment process (17:293).

Applying the Integrating Approach. In each chapter, the approach will show whether the series of legislative decisions converged into a discernible trend which suggests the textual evolution of the statute was from restrictive language to more flexible language or from more flexible to more restrictive. Each of the four developments will then be compared with each other in the last chapter of the thesis to determine the existence and nature of an overall trend. An overall trend from flexible language to language which was

more restrictive would suggest that Congress chose to achieve its goal by a remedy which would justify higher headquarter's decision to closely monitor its programs with regulatory language even more restrictive than the language in the statute. An inference from this would be that higher headquarters ought to broaden its approval authority to include subsets of fixed-price type contracts and development programs that are larger than that prescribed in the statutes. On the other hand, an overall trend from more restrictive language to language which gave DoD more flexibility would suggest that Congress sought to achieve its goals by means of a remedy that would justify higher headquarter's decision to use regulatory language whose level of flexibility is the same as the language in the statute. An inference from this would be that higher headquarters ought to limit its approval to only the subsets of fixed-price type contracts and development programs indicated in the statutes. These two general trends would provide a predictive assessment of whether the language of any regulatory implementation should be less flexible than the statutory language or should maintain the same level of flexibility provided by the statutory language.

The assessment from the textual evolution of the statute will be supplemented by the explanatory sources of legislative history. Committee or conference reports may clarify whether the statutory remedy is to achieve its desired effects in an atmosphere of flexibility or tight control. Statements from hearings and debates could provide opinions on whether flexibility or tight control is a desired side-effect of the legislation. All of these sources may verify the assessment suggested by the trends of the textual evolution.

Investigative Questions #2 and #3: "What is 'realistic' pricing?" and "What is an 'equitable and sensible' allocation of risk?"

The Integrating Approach of Statutory Purpose. The primary sources of information for this approach are the explanatory sources of legislative history, i.e., the committee reports and hearings, the debates, and the executive documents. These sources could provide express statements of purpose. If express statements are not available, then the sources would provide statements of circumstances existing at the time of enactment, the chosen remedy, and the desired outcome, from which a statutory purpose may be inferred.

This section, then, develops the use of statutory purpose as the integrating approach for determining the meaning of a statute's language. As part of this development, this section will briefly examine the relationship of two other approaches, literal interpretation and the "golden rule" exception, to the purpose approach (24:293; 88; 112). Both of these other approaches initially rely on only the words in the statute as the informational basis for determining implementation (69:5; 73:823; 81:236; 88:1299-1300; 112:10). While these two approaches limit themselves to only the text of the statute, the purpose approach tests a proposed implementation against the goal which the legislature wishes to achieve (38:572-573; 56:691; 88:1299). Those who implement a statute according to this approach must propose a meaning whose implementation is likely to accomplish the legislature's purpose when the statute was created and which also considers the language under examination (24:296; 104:11; 112:12).

Historical Development Up To 1900. In the Anglo-American law system, the use of statutory purpose as the integrating

approach for statutory implementation traces its lineage to Elizabethan England (108:217). Plowden's Reports, first published in 1578, documented an opinion from twenty years earlier which had explained the following three different methods which could guide judges when implementing a statute: "...sometimes by considering the cause and necessity for making the Act, sometimes by comparing one part of the Act with another, and sometimes by foreign circumstances" (19:294). Another opinion in Plowden's Reports, from 1562, suggested essential elements for proper statutory implementation.

First the Common Law is to be considered, and the Mischief that was before the statute; secondly, the Purview and Intent of the Statute; and thirdly, the State and prerogative of the King. (60:217)

Edmund Plowden's theory that implementation should focus on the "cause" or "mischief" which brought the statute into being was restated several decades later in Coke's Reports as the rule in Heydon's case (23:520; 60:216-217).

It was resolved by the Barons of the Exchequer that for the sure and true interpretation of all statutes in general (be they penal or beneficial, restrictive or enlarging of the common law) four things are to be discerned and considered: 1st, What was the common law before the making of the act; 2nd, What was the mischief and defect for which the common law did not provide; 3rd, What remedy the parliament hath resolved and appointed to cure the disease of the commonwealth; and 4th, The true reason of the remedy; and then the office of all the judges is always to make such construction as shall suppress subtle inventions and evasions for the continuance of the mischief...and to add force and life to the cure and remedy according to the true intent of the makers of the Act... (108:216)

According to Plowden and Coke, the aim of those who implement a statute should be to further the purposes of the legislature's enactments (23:521-522; 65:437; 67:757; 71:9-10; 115:524).

Judges used this approach at a time when statutes were subordinate to the common law (97:390). In the time of Plowden and Coke, the

common law was a complete and rational system (97:388). Statutes restated or emphasized existing parts of the common law when necessary (97:390). Statutes also dealt with situations for which the common law did not provide (97:390). Amendments to the system were tolerable, as long as what few amendments that existed were specific and limited in scope to correcting only the "mischief" (97:389). The common law was changed only with cautious consideration (97:390). This approach was effective during the Tudor and Stuart periods of English history when the work of government was integrated under the supremacy of the reigning monarch (19:294).

This supremacy was struck down in the revolution of 1688 and, in its place, rose the supremacy of Parliament (19:295,298). Prior to the revolution, administration had been under the royal prerogative (19:297). Having eliminated this prerogative, and being unwilling to grant a statutory prerogative through broad statements of principle, Parliament gradually came to rely on specific enumeration to limit the powers of officials (19:297). The doctrine of separation of powers, which gave the judiciary a subordinate role in policy development, guaranteed that only a statute provided the justification for government action (19:297; 71:11). Judges became passive agents whose duty was to discover what was legislated; and, if the legislation spoke only of particular things and situations, the judges could infer that these particulars exhausted the legislative will (19:298; 71:11). This change, which came to fullness only after several generations, profoundly affected statutory implementation by narrowing the judicial view from the broad scope of purpose to the limited scope of specific, enumerated details (19:297).

That this trend toward the narrow scope of details took place over a long period of time is exemplified in the writings of Sir William Blackstone (19:298). He restated the approach of Plowden and Coke in his Commentaries on the Laws of England, published almost a century after the revolution of 1688 (6:87). He recommended it as the preferred approach for remedial statutes (6:87). He also suggested its use for "dubious" statutory terms.

...the most universal and effectual way of discovering the true meaning of a law, when the words are dubious, is by considering the reason or spirit of it; or the cause which moved the legislator to enact it. (6:61)

Even so, as statutory language became more and more specific, the need for a different approach for applying statutes became more and more apparent (19:298). By the end of the 18th century, English judges were gradually adopting the approach of literal interpretation and, in the early 19th century, it became preeminent (19:299-300; 65:434).

Literal interpretation denies the need to interpret unambiguous language (88:1299). The rule of literal interpretation is useful when the term in question has a clear, uncertain meaning (38:571; 56:691). The implementation must then reflect the ordinary sense of the term (24:295; 112:10). Two assumptions are necessary for this approach (56:690). The first assumption is that the terms at issue have only one clear, ordinary meaning (56:690,691). An example of this is "the current President of the United States" from the discussion on the investigative questions at the end of the last chapter. The other assumption is that the true meaning of the terms is in fact the same as the clear meaning of the terms to the reader (56:690). According to those who oppose this approach, literal interpretation does not recognize that words like "immorality" can have elastic and relative

contents depending on the context in which they were used (88:1299,1300). According to the supporters of the literal approach, literal interpretation "brings certainty, that is, uniformity and predictability of decision, into statutory interpretation" (69:21). Whatever the legislature enacted should be enforced according to literal interpretation even though the result may be "absurd" or "mischievous" (56:693).

Other authorities in the legal community believed this particular application was undesirable, however, and they suggested another approach, called the "golden rule," to the approach of literal interpretation (19:299; 24:295-296; 56:690; 112:12). The "golden rule" tests an implementation against unreason or absurdity (38:573; 56:691,695). The literal interpretation is binding unless absurdity or injustice results (19:299; 24:296; 33:546; 56:690; 112:12). The clear, ordinary meaning could then be modified to avoid what the legislature could never have intended (19:299; 56:690). Throughout the 19th century in England, the "golden rule" never won the broad acceptance achieved by the approach of literal interpretation (19:300). During the same time period in the United States, on the other hand, Chief Justice Marshall set literal interpretation constrained by the "golden rule" as the primary approach.

In 1892, however, the United States Supreme Court used a different approach entirely in its decision for the Church of the Holy Trinity vs. the United States (95:323). The Court relied on information from congressional documentation to establish the cause which had moved Congress to action (95:323). The Court then interpreted the statute in light of "...the evil which was sought to be remedied..." (95:323).

This decision marked the start of the trend away from heavy reliance on any literal interpretive approach towards the approach of statutory purpose in the federal court system (69:4,20; 95:323).

Development of the Purpose Approach After 1900 in the Law Review Literature. An examination of this development in the law review literature reveals that its acceptance occurred over the same general time period as the acceptance of congressional documentation explained previously. The earliest appearance was in an article published in 1907 (94). In this article, Dean Roscoe Pound of the Harvard Law School wrote that the use of the "reason or spirit of the rule," the statute's purpose, was an example of genuine interpretation (34:606; 94:381). In a 1915 Yale Law Journal article, Professor Ernest Bruncken explained that the "spirit or reason of the law" was the framework which was then filled with common qualities in external facts (9:134). Professor Ernst Freund of the University of Chicago restated this explanation when he suggested that meaning is an inference from facts and conditions that are part of the history of the times (49:212). Up to this point, all of these sources supported interpretation in light of the purpose or circumstances existing at the time of enactment; however, none of them wrote that congressional documentation was an acceptable source of information.

The first source in the law review literature to support the use of this documentation was Mr Clarence Miller (85). He noted in 1925 that interpretation based on "...the purpose for which it [the statute in question] was passed and the evil it was intended to remedy" had the approval of Chief Justice Taft of the United States Supreme Court (85:159-160). Mr Miller's comment was in the context of a discussion

on the favorable value of congressional documentation (85:160).

Dean Landis wrote of the danger of ignoring the political and economic forces of the time and insisted that legislative purpose is "the important guidepost for statutory interpretation, not the desiderata of the judge" (70:892). Like Mr Miller, Dean Landis wrote this in the context of a favorable opinion of the value of congressional documents (70:891). Professor Horack restated this position in 1932 when he wrote that the use of legislative purpose derived from congressional documents provides greater objectivity in implementation (59:128).

Dean Landis wrote in 1934 that the grammatical, or literal, approach was yielding to the approach in which those who implemented the statute understood the legislature's policy as an outcome of "the manifold circumstances responsible for statutory formulation" (71:25). By 1940, almost 50 years after the Supreme Court's favorable decision for the Church of the Holy Trinity, the trend away from literal interpretation towards the use of statutory purposes not part of the text of the statute became evident in federal court opinions and the law review literature (95:348; 106:329).

During this time, Professor de Sloovere contributed many articles on statutory interpretation to the law review literature. Professor de Sloovere believed the goal of all satisfactory implementation was to fulfill the statute's purpose (30:553). He measured the success of this outcome by how closely the judicial precedents and executive regulations approximated the legislative purpose (30:537). The closest approximations were achieved in light of the context, or the extrinsic aids, that were available (29:219). He defined the context as the legislative history, the relation of the statute to others on the same subject, and the statute's purpose as

understood from express statements or in light of the circumstances which brought about the statute (29:219; 30:529; 32:16; 33:557). The information from this factual background would provide a clearer determination of the statute's purpose, nicer approximation of objectives in application, and better illumination of possible implications of the text (30:531,533). As a result, those who implement the statute could not only make a more discriminating choice when choosing the most satisfactory meaning the language may fairly bear, but also apply the statute to give full effect to the purpose (30:528,531). Meaning derived from the text and context is more reliable than meaning derived from the text alone (30:532).

Mr Jones further developed this approach in the law review literature by distinguishing between an express declaration of purpose by the legislature and the reconstruction of this purpose by those who implement the statute from the existing circumstances as recorded in congressional documents (67:762). Mr Jones wrote that specific information about these circumstances is more valuable if it was the basis on which the legislature acted (67:762). He then discussed the value of committee reports and hearings, statements in debate, and communications from executive and administrative officers (67:763). He stated that action based on facts known to the legislature would give a closer approximation of legislative policy than information from any other source (67:763). His conclusion was that legislative sources provided the best source for evidence of the "evils" which the legislation was to eliminate (67:764).

After 1940, the view of legislative purpose as the touchstone of statutory implementation approached unanimity. Members of the legal community in the United States and Canada, professors as well as

practitioners, contributed to the overwhelming consensus in the law review literature (20:627; 21:370; 41:586; 47:538; 76:400; 79:372). What began in Elizabethan England as a way to cautiously supplement a system which should be disturbed as little as possible became in modern times the favored approach to determine the nature of the structure erected on the foundation of a statute enacted by a legislature with the power to set certain purposes as desirable for society (97:398).

Several initiatives related to the use of statutory purpose have appeared in the law review literature. Professor Joseph P. Witherspoon suggested a major addition to this approach (113; 114). He believed that the historical purpose of the statute, the immediate purpose which occasioned its enactment, was unnecessarily limited and did not recognize other important elements of purpose (114:433). He wrote that a new concept of purpose ought to take effect in the implementation of a statute which would recognize that a variety of purposes are operative (113:792; 114:433). Examples of this variety were purposes which came into existence both before and after enactment of the statute and purposes in related legislative fields (113:847; 114:433-434). Professor James C. Thomas suggested another initiative. He believed that scholars can satisfy a great need of the practitioner by doing research to identify the purpose of particular statutes (107:220). This research would be valuable because most practitioners do not have the time to examine in detail the available sources to determine legislative purpose that is not directly expressed (107:220). The active research interest in the consideration of a legislature's purpose and its universal acceptance make it preeminent in statutory interpretation and justify its choice as part of the integrating approach of the information gathered for this thesis (36:86,87).

Perspectives on Meaning. The overview for this discussion on the integrating approach stated that a proposed meaning had to satisfy the statute's purpose and also consider the language in question. Up to this point, the discussion has concentrated on the first part of the approach, i.e., satisfying the statute's purpose. The rest of the discussion will describe the other part of the approach, i.e., considering the language in question. Drawing from material in the law review literature, this part of the discussion summarizes the different perspectives on meaning that are available when considering language. The discussion then provides the statement and development in the law review literature of the perspective used in this thesis.

Summary of the Different Perspectives on Meaning.

"The central problem of construction is to ascertain meaning;" and, the law review literature since the end of the last century has offered a number of perspectives which may be adopted to achieve this goal (46:366). The earliest contribution came from Mr Justice Oliver Wendell Holmes in 1899. He recommended that the meaning should reflect an imaginary "normal speaker of English," rather than the creator of the statute.

Thereupon we ask, not what this man [the writer] meant, but what those words would mean in the mouth of a normal speaker of English, using them in the circumstances in which they were used, and it is to the end of answering this last question that we let in evidence as to what the circumstances were. But the normal speaker of English is merely a special variety, a literary form, so to speak, of our old friend the prudent man...We do not inquire what the legislature meant; we ask only what the statute means. (54:417-418,419)

A variation of Mr Justice Holmes' perspective came from Mr Charles P. Curtis in a 1950 issue of the Vanderbilt Law Review.

Mr Curtis suggested that the first source of the meaning of words is the person to whom they are addressed.

So the meaning of words is to be sought, not in their author, but in the person addressed...in the defendant who is charged with violating the statute...[and] in the second and ultimate instance by the courts who determine whether the person addressed has interpreted them within their [the word's] authority...This, then, whether the addressee has applied or proposes to apply the words within the authority they have given him, is what the courts have to decide...(22:424).

Mr Curtis, like Mr Justice Holmes, maintained that meaning is first to be sought in the person affected by the statute; however, whereas Mr Justice Holmes' "person" was an imaginary literary form, Mr Curtis' "person" was not. In the same law review issue, Judge Charles E. Clark provided a rebuttal to Mr Curtis' suggestion (13).

Many people in the legal community, professors and practitioners alike, have contributed opinions on whether the statute's language should reflect the meaning given by the statute's creator. The opinions may be organized into three groups (91:513). The first group accepts the existence of a discoverable meaning attributed by a legislature and believes that this meaning can be frequently established (91:513). The first statement of this position appeared in the law review literature in 1907 (94). Dean Pound recommended that the meaning should be that of the "law-maker."

The object of genuine interpretation is to discover the rule which the law-maker intended to establish; to discover the intention with which the lawmaker made the rule, or the sense which he attached to the words wherein the rule is expressed. Its object is to enable others to derive from the language used the same idea which the author intended to convey. (94:381)

Later writers, such as Dean Landis and Senator John Sparkman, supported the approach of using actual, expressed legislative meanings found in the history of the enacted statute (70:888; 103).

The second group believes that the concept of legislative meaning is useful whether or not such a meaning is actually discoverable (91:513). The first statement of this position appeared in the law review literature in 1915 (9). Professor Bruncken, in proposing a way for a mutable social order to reap the benefits of a statute's universal propositions expressed in words whose meanings change over time, wrote that the meaning should be what the legislator would have expressed if he were available to resolve the current issue in question.

In all cases regarding the doubt of the meaning of words, the text should be construed to mean that which the legislator would himself have expressed if he had been in possession of all the relevant facts which the court finds to exist at the time of rendering its decision. (9:135)

In later years, Professor Horack applied Professor Bruncken's approach in cases where no actual, expressed legislative meaning was available in the legislative history of the statute (59:129).

The third group believes that legislative meaning is either not discoverable or not relevant (91:513). The first statement of this position appeared in the law review literature in 1917 (49). Professor Freund suggested that actual, expressed legislative meaning was not predictable in any event (49:212). The meaning which controls the language of a statute is an inference from facts and conditions which were part of the public history of the times when the statute was enacted (49:212). Professor Freund would not attribute this inference to the legislature (49:231). The inference was based instead on the use of independent judgment as part of the judicial power of interpretation (49:216,231).

...in cases of genuine ambiguity courts should use the power of interpretation consciously and deliberately to promote sound law and sound principles of legislation. That object

is far more important than a painstaking fidelity to the supposed legislative intent. This intent is in reality often a fiction and the legislature is fully aware that any but the most explicit language is subject to the judicial power of interpretation. (49:231)

Professor Freund's approach was continued in the early writings of Professor Radin (99:881).

Perspective on Meaning Used in this Thesis. As already stated, the integrating approach uses two constraints, the first of which is contextual, i.e., the assigned meaning must satisfy the statute's purpose. The second constraint is textual and relates to the perspective on meaning when considering language: those who implement uncertain terms in a statute have the freedom to assign meaning as long as the statute's words are able to carry what is assigned. The rest of this section describes the development of this part of the approach in the law review literature.

The first statement of this approach appeared in 1932. Professor de Sloovere suggested that those who are responsible for implementing uncertain terms are free to determine meaning constrained only "by the text and by the context" of the statute.

The only legislative intention, whenever the statute is not plain and explicit, is to authorize the courts to attribute meaning to a statute within the limitations prescribed by the text and by the context. (31:415)

Several years later, in 1940, Professor de Sloovere explained the constraint of context and text (30). In commenting on Professor Bruncken's approach, Professor de Sloovere noted that the approach did not consider the statute's purposes where it would have been valuable. His reference to the "meaning the words will honestly bear" suggests a textual constraint.

...it [Bruncken's approach] overlooks the importance of the clearest determination of statutory purpose and legislative

policy and of all possible implications of the text necessary to give full effect to the technique of choosing the most satisfactory meaning the words will honestly bear in view of the statutory objectives. (30:531)

In the same article, Professor de Sloovere again referred to the limitations prescribed by the text when he wrote of "...the most satisfactory meaning the statutory words will bear by fair use of the language" (30:538).

Professor J.A. Corry, in an article published in a 1936 issue of the University of Toronto Law Journal, provided the next development in the perspective that those who implement uncertain terms have the freedom to determine meaning. Professor Corry suggested that the legislature entrusts rule-making power, and has even, in fact, surrendered some of its legislative power, to the executive branch.

It is enough for the present to point out that, in this age, when the activities of the state are increasing rapidly day by day, due to forces largely beyond our control...
[p]arliament finds it more and more necessary to entrust the making of detailed rules and regulations to the executive. In many cases, parliament has practically surrendered its legislative power to bodies better qualified to lay down rules of administration. (19:288)

In the same article, he adds the same two constraints of context and text as Professor de Sloovere. Professor Corry wrote that those who implement statutes as part of an orderly process of societal change can do so only when they understand what adjustment the statute is trying to bring about (19:293) Professor Corry also wrote that the statute's language itself affects implementation (19:291-292). For example, the more general term "carriage" in a statute may or may not suggest a "bicycle" or a "wheelbarrow;" but, it would be highly improbable for it to exclude a "four-wheel horse-drawn passenger vehicle" (19:292). Both general purpose and language act as constraints on the freedom of those who implement a statute to determine meaning.

Several years later, the same development noted by Professor Corry appeared in the law review literature of the United States. In a 1939 issue of the Indiana Law Journal, Professor Powell concurred that the legislature has delegated rule-making power to those who administer policy.

Statutes have found it impossible to imprison in written words the multiplicity of rules needed for regulating large segments of human conduct. Hence statutes of the past decade evidence a new technique, namely the declaration of general policy, the administration of which is committed to a constantly functioning body of persons hoped to be experts. (95:311)

In two articles which appeared in 1940 issues of the Iowa Law Review and Columbia Law Review, Mr Jones wrote about rule-making power in statutory implementation. Mr Jones wrote that both executive and judicial officials have the duty to provide detailed rules applying the statute's general purpose to particular situations which the draftsman could never have foreseen when writing the general propositions of law (67:739; 68:973). Not only did Mr Jones note the importance of the statute's purpose, but he also emphasized the existence of textual constraints. The term "motor vehicles" may or may not include "aeroplanes;" but, the term can hardly include "bobsleds" or "sailboats," or exclude all but "Chevrolets" and "Fords" (67:739). Even with these constraints, however, those who implement the statute have considerable freedom in their role of rule-making (67:739). At no time at this point in the development do Professor Corry, Professor Powell, or Mr Jones state or even suggest that the legislature consciously delegates legislative power to the other branches of government; rather, any exercise of subordinate legislative power in certain cases seems to be inevitable (68:973-974).

The final development in this approach was the belief that, in using vague terms, Congress does in fact consciously delegate legislative power to those who implement a statute. This development first appeared as a very brief comment in a 1947 issue of the Columbia Law Review. Judge Jerome Frank described the situation in which Congress, being able to "...make plain when it wants literal]ness, when it wants judicial legislation," has used words which, "by their nature, leave to the courts the job of applying broad vague standards" (45:1266,7). Judge Frank asserted that "...today statutes abound with words such as 'reasonable,' 'fair,' 'equitable,' 'proper.' Those words...invite, the, require, judicial legislation" (45:1266). A comprehensive exposition of this development did not appear in the law review literature until 1956. In that year, Professor Arthur S. Miller wrote that when a legislature has a choice in the language it uses, its preference for vagueness is intentional and an overt delegation of legislative power to those who implement the statute.

Statutes vary, of course, in the degree of imprecision used by the draftsman. Parts of the Federal Internal Revenue Code, for example, are extremely detailed, while on the other hand, the Sherman Antitrust Act speaks only in broad general terms. This article will discuss one facet of such use of language by Congress: when words of broad generality are used, i.e., words of a high level of abstraction, it will be argued that Congress, in so doing, is delegating power...to legislate on its behalf. This is, at the very least, the result of using vague language. Since Congress always has an option of choosing between precision and imprecision in language, its choice must be thought to be deliberate and, thus, to be purposive. (84:23-24)

According to Professor Miller, this delegation includes the power to determine meaning.

The assumption is: Congress, in using words of obvious ambiguity in a statute, is directing the Court to put content into those words. To put it another way, a congressional use of ambiguous language must be considered to be purposive and

amounts to a delegation of power to construct a perimeter around the ambiguous terms. (84:30)

This development was re-stated in 1961 by Professor Julius Cohen (15:415). Professor William P. Statsky succinctly summarized this development in his book Legislative Analysis and Drafting, published in 1984.

The process of interpreting the law inevitably brings about the formulation of that law. The clearest example of this is when the legislature uses vague or general language in its statute. The language, in effect, amounts to an invitation...to create law, with this language as the starting point. (104:11)

In addition to the textual constraint just given, Professor Statsky includes the contextual constraint of general purpose when he quotes Mr Justice Harlan, "...we may assume that we are free to adopt and shape policies limited only by the most general statement of purpose" (104:12).

The authorities given above reveal that implementing freedom is constrained, even when dealing with vague statutory terms. As the concept of freedom to use independent judgment has evolved in various situations--beginning with the attribution of meaning, then through rule-making, and finally to the creation of law--writers in the law review literature have stressed that the freedom must operate within the terms at issue and the statutory purpose to be achieved. In any task of statutory implementation, by no means may those charged with implementation consider themselves to be free agents at large (67:739). The statute's words set limits (47:543-544; 79:372). Purpose does constrain meaning (47:538; 107:199).

Applying the Integrating Approach. In each chapter, the approach will derive statements of statutory purpose from the explanatory sources of the legislative history of a statute. With the

identified statutory purpose, which is the constraint of context, and considering also the textual constraint or perspective on meaning, i.e., the words of the statute's text must honestly be able to carry the assigned meaning in the opinion of those who implement the statute, definitions for "realistic" pricing and an "equitable and sensible" allocation of risk will be provided in the last chapter. These definitions, a product of the information shaped by the integrating approach, would give direction to further implementation of statutory requirements on the use of fixed-price type development contracts.

Chapter Summary

This chapter began by describing fundamental conceptions which condition any methodological approach for statutory implementation. The second part of the chapter discussed the definition and gathering of the sources of information. The third part of the chapter discussed the approaches for processing the information to create a synthesis whose content would reflect the hopes and desires of those who created the statute.

Throughout the process of methodological development, every effort has been made to create an objective, rational approach. The definitions and approaches in this chapter are fully described so that they may be examined and then verified in the sources from which they originated (51:768). The information collection will be objective (51:768). All information from the sources will be gathered and presented in the following chapters so that it is available for comparison with its source document. Full disclosure of definitions, information, and integrating approaches allows others to replicate the findings (51:768). The conclusions drawn from these findings would be

the first contribution toward starting a cumulative body of knowledge for applying the statutes dealing with fixed-price type contracts (51:768). The answer to the investigative question on whether additional, more restrictive regulatory language should be added is predictive based on a synthesis of a general trend in the textual evolution of the statutes. The answers to the two investigative questions on "realistic" pricing and the "equitable and sensible" allocation of risk, based on the synthesis of statutory purpose, would contribute useful definitions. These approaches should provide for an outcome that is as objective as possible.

III. Section 8118 of the Department of Defense Appropriations Act
in the Continuing Resolution for Fiscal Year 1988 (Public Law 100-202)

This chapter examines section 8118 of P.L. 100-202, the FY 1988 Continuing Resolution. It presents the legislative history of section 8118, and then analyzes this information. The chapter concludes with a summary of the findings from the analysis.

Legislative History

The origins of this provision in the legislative history are in the hearings conducted as part of evaluating the FY 1988 DoD budget proposal. The Subcommittee on the Department of Defense of the House Appropriations Committee (HAC) held 40 days of hearings, intermittently from 4 February 1987 through 15 July 1987 (193:4). The testimony consisted of 5,200 pages of transcript, of which 900 pages were not printed because of security classification reasons (193:4). The published record of these hearings is in seven volumes consisting of 7,100 pages (193:4). Appendix A of this thesis presents all testimony given in these hearings related to using fixed-price type contracts for weapon system development programs. The HAC incorporated findings from these hearings into H.R. 3576, the initial legislative proposal for FY 1988 DoD appropriations.

The first version of H.R. 3576 was reported by the HAC on 28 October 1987 and a print of the bill was published (123:H9449). The HAC included in this bill the following section on the use of fixed-price type contracts for weapon system development:

Sec. 8105. None of the funds provided for the Department of Defense in this Act may be obligated or expended for fixed price-type contracts for the development of a major system or

subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense: Provided further, That at least 30 days before making a determination under this section the Secretary of Defense will notify the Committees on Appropriations of the Senate and House of Representatives in writing of his intention to authorize such a fixed price-type developmental contract and shall include in the notice an explanation of the reasons for the determination. (191:84-85)

On the same day, the HAC chairman also filed the committee report which accompanied H.R. 3576 (122:H9126). This report explained the need for the legislation as follows:

The Committee is concerned about the Navy's policy regarding fixed-price contracting in RDT&E [research, development, test, and evaluation]. In the fiscal year 1988 budget alone, the Navy has identified over \$2 billion in programs which include, or provide direct support to, fixed price contracts. This represents almost 40 percent of the budget request for advanced and engineering development (classified programs excluded). Fixed pricing of this magnitude interferes with the Committee's responsibility to exercise oversight and control of the RDT&E, Navy appropriation, since mandated budget reductions cannot be responsibly allocated with such a large set-aside for fixed-price programs. In addition, while the Army and ~~Air Force~~ continue to adhere directly to FAR guidelines, the Navy does so only through the template of their own instructions. The Committee believes that two separate sets of policies and practices are counterproductive and unnecessary.

The Committee conducted an in-depth investigation of the Navy's policy this year, and concludes the following: (1) cost savings and perceived benefits of fixed price RDT&E contracts, as presented by the Navy, were frequently inaccurate and misleading; (2) fixed price RDT&E contracts have generally not proven effective in controlling cost or risk, as evidenced by many past programs; (3) DOD has no established and proven method of assessing developmental risk, which is essential for the effective use of fixed-price contracting; (4) after two years of monitoring the Navy's policy, neither the Army, Air Force nor OSD have adopted the Navy's policy, and apparently no plans exist to do so in the future.

The Committee has long supported the extensive use of fixed-price contracts in recurring production. In RDT&E, the selective use of these contract types is called for. Towards

that end, the Committee recommends that the Navy review their policy with the intent of moderation. Additional discussion and direction on this issue, including bill language, is in the overall RDT&E section of this report. (193:228-229)

The additional discussion and direction mentioned above appeared earlier in the report and is as follows:

The Committee is very concerned over the current policy and practices regarding the use of fixed-price contracts for engineering development activity. These concerns are as follows:

1. The large percentage of RDT&E appropriations allocated for fixed-price contracts (and their supporting program costs) interferes with the Committee's responsibility to exercise oversight and control of these appropriation accounts. In general, the Committee does not wish to see contracts broken; however, mandated budget reductions cannot be responsibly allocated with a large set-aside for fixed-price programs. Budget priorities should be based upon program and military merit, and not upon chosen contracting strategy. As fixed pricing increases in a zero- or modest-growth budget, other programs will be required to take more severe reductions without consideration of their relative military value.

2. There exist separate policies and practices within the Department of Defense concerning the use of fixed-price contracts for RDT&E work. Although federal regulations state that cost-type contracting is usually appropriate for RDT&E due to program risk and uncertainty, one service has issued its own guidance which would, over time, virtually eliminate cost-type contracting in full-scale development (FSD). This latter policy presumes the reduction of program risk prior to FSD. However, the department has no established and proven method of assessing developmental risk, and a recent audit by the General Accounting Office found that few programs met even minimal quality standards for risk assessment. Recent experiences in several fixed-price development programs (e.g., DIVAD, AMRAAM, and F-14D) are reminders of the inherent risk in engineering development, and therefore indicate the minimal and selective use of fixed-price contracting for development activity.

Given these serious issues, the Committee believes there should be one department-wide policy, consistently enforced among all services, and that this policy should reaffirm the use of fixed-price-type RDT&E contracts only on a selective basis, with a presumption towards cost-reimbursement contract types, unless overwhelming objective and quantitative data can be presented to the contrary. The Committee, therefore, has provided a new general provision which requires the Department to certify that certain criteria in existing policy are met, and to advise the Congress, prior to making fixed-price development contract awards.

The Committee intends to review new proposals for fixed-price development contracts with caution. Beginning with the fiscal year 1989 budget, the Department is to submit a list of such programs, by service, with corresponding budget totals. (193:202-203)

An examination of the Congressional Record Index reveals that no further action occurred on H.R. 3576 after the HAC reported it to the House of Representatives.

On the following day, 29 October 1987, the HAC chairman reported H.J. Res. 395 and a print of the bill was published (196:1). This bill was the House version of the comprehensive continuing resolution (CR) to provide "government financing for the 1988 fiscal year for programs funded by appropriations bills not enacted into law by November 20, 1988" (195:2). The CR would provide "full-year funding--through September 30, 1988--for all 13 regular appropriation bills" (204:11). No clause related to section 8105 of H.R. 3576 was in the reported print of H.J. Res. 395. On 3 December 1987, the House passed H.J. Res. 395 (124:D1571). The Congressional Record does not report that the House debated or offered an amendment related to the use of fixed-price contracts for weapon systems development (124:H10911-H10983).

On 8 December 1987, the Senate received the House version of H.J. Res. 395 and referred it to the Senate Appropriations Committee (SAC) (125:S17435). The SAC reported H.J. Res. 395 on the same day and another print of the bill was published (125:S17435; 205:1). On 11 December 1987, the Senate debated H.J. Res. 395 and passed it with amendments (126:S17791-S17963,D1614). An examination of both the Senate-reported print of H.J. Res. 395, as well as all Senate amendments and debate, reveals that neither the SAC nor the Senate as a whole considered a clause on the use of fixed-price contracts

(126:S17791-S17963,D1614-D1618). The Senate insisted on its amendments, requested a conference, and appointed conferees (126:S17964). On 12 December 1987, a third print of H.J. Res. 395 was published with the amendments of the Senate numbered (185:1).

On 14 December 1987, the House received a message that the Senate had passed H.J. Res. 395 with amendments (127:H11293). The HAC chairman requested the unanimous consent of the members of the House to disagree with the Senate amendments and agree to the requested conference (127:H11293-H11294). There was no objection, and the Speaker of the House appointed conferees (127:11294). From 14 December 1987 through 21 December 1987, the conferees met to resolve the disagreements between the House and the Senate (127:D1630; 128:D1639; 129:D1645; 130:D1652; 131:D1675).

During conference committee action on H.J. Res. 395, the conferees added a revised text of section 8105 of H.R. 3576 (187:88). This text was printed with the rest of the conference report in House Report 100-498 as well as in the Congressional Record (132:H12417; 187:88).

Sec. 8118. None of the funds provided for the Department of Defense in this Act may be obligated or expended for fixed price-type contracts in excess of \$10,000,000 for the development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense: Provided further, That the Under Secretary report to the Committees on Appropriations of the Senate and House of Representatives in writing, a quarterly basis, the contracts which have obligated funds under such a fixed price-type developmental contract. (132:H12417; 187:88)

The joint explanatory statement of the committee of conference, printed with the conference report in House Report 100-498 as well as in the

Congressional Record, gave the following explanation for the revised language:

The conferees agree with the strong concern of the House over the increasing use of fixed price-type contracts for engineering development and separate practices within the department over this issue. Rising dollar values for such contracts in a declining budget environment is likely to lead to unnecessary and wasteful contract renegotiation including termination or renegotiation cost. In order to prevent such problems, the department or the Congress may be compelled to reduce funding for other programs not on the basis of relative merit, but to maintain the government's credibility as a reliable business partner. While this may seem desirable, it could skew funding priorities for development away from the primary goal of achieving improvements in high priority military requirements.

As a consequence, the conferees accept compromise bill language in this area. The language requires the Under Secretary of Defense for Acquisition to make determinations in writing concerning program risk prior to awarding a fixed-price type development contract with a total contract value of greater than \$10,000,000. Due in part to inconsistencies in practice among the services, the bill states that this authority may not be delegated below the level of Assistant Secretary of Defense. The conferees also agree with House language directing a single, DOD-wide policy on this issue, with language encouraging the Navy to review its policy in particular.

In order to reduce the appearance of congressional micromanagement of acquisition policy, the conferees agree to require quarterly reports of obligations under such contracts instead of the more rigorous requirement of prior certification to Congress proposed by the House. However, the conferees express their willingness to impose more severe restrictions in the future if policy and practice are not more uniform among the services and in accord with DOD Directive 5000.1, which states that "contract type shall be consistent with all program characteristics including risk. Fixed price contracts are normally not appropriate for research and development phases".

The conferees may also consider an extension of the full funding principle into the RDT&E accounts for fixed-price RDT&E programs in the future. This would be similar to the milestone budgeting concept, and would strengthen the government's ability to follow through on implied future program commitments.

As directed by the House, the department is to submit a list of major fixed-price RDT&E contracts included in the fiscal year 1989 budget request, by service.
(132:H12585-H12586; 187:623-624)

Shortly after midnight on 22 December 1987, the conference report and joint explanatory statement for H.J. Res. 395 were brought before the House membership for consideration (131:H11996). Two hours later, the House agreed to the conference report and joint statement by a recorded vote of 209 in favor to 208 opposed (131:H12046; 132:D1674). The House sent the conference report and joint statement to the Senate, where, after further debate, the Senate agreed by a vote of 59 in favor to 30 opposed (132:D1672). In their deliberations, neither the House nor the Senate debated or considered an amendment related to section 8118 (131:H11996-H12046, S18712-S18760). H.J. Res. 395 was then published as P.L. 100-202 (182:101 STAT. 1329). The new text of section 8118, now part of public law, reads as shown below.

Sec. 8118. None of the funds provided for the Department of Defense in this Act may be obligated or expended for fixed price-type contracts in excess of \$10,000,000 for the development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense: Provided further, That the Under Secretary report to the Committees on Appropriations of the Senate and House of Representatives in writing, on a quarterly basis, the contracts which have obligated funds under such a fixed price-type developmental contract. (182:101 STAT. 1329-84)

Analysis

The analysis begins with the textual evolution of section 8118. The analysis then examines the committee reports and hearings which are the explanatory sources of the legislative history available for this provision.

Textual Evolution of Section 8118. A comparison of section 8105 of H.R. 3576 with section 8118 of P.L. 100-202 shows that the language in the bill differs from the language in the statute in five important ways. Figure 2 below shows the differences between section 8105 and section 8118. The deletions are struck through and the additions are printed in italic.

Sec. 8105 8118. None of the funds provided for the Department of Defense in this Act may be obligated or expended for fixed price-type contracts in excess of \$10,000,000 for the development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense: Provided further, That at least 30 days before making a determination under this section the Secretary of Defense will notify the Under Secretary report to the Committees on Appropriations of the Senate and House of Representatives in writing of his intention to authorize, on a quarterly basis, the contracts which have obligated funds under such a fixed price-type developmental contract and shall include in the notice an explanation of the reasons for the determination.

Figure 2. Revisions to Section 8105 of H.R. 3576 Which Yielded Section 8118 of P.L. 100-202

The first difference ① is that P.L. 100-202 inserted a threshold of \$10 million for both the certification and reporting requirement. This would reduce the number of contracts subject to oversight. The second difference ② is that the statute allows the USD(A), rather than the Secretary of Defense, to notify the Committees on Appropriations of DoD's actions under this statute. This express

delegation reduces the personal involvement required of DoD's senior executive. The third difference ③ affects the frequency of reporting. The statute requires a cumulative quarterly report of contracts affected by the statutory requirement rather than a separate report for each fixed-price type contract. The fourth difference ④ changes the timing of the report from before award of the contract to after award of the contract. The effect of both these changes is that DoD need only report awards of fixed-price development contracts cumulatively on a quarterly basis after the contracts have been awarded. This greatly reduces the frequency of reporting, and the timing of the report does not compromise USD(A)'s prerogative. It precludes inquiry into, or possibly even reversal of, the planned approval of a fixed-price type contract. The last difference ⑤ is that USD(A) need not explain the DoD's rationale for choosing a fixed-price type contract. These five differences provide for a less demanding statutory requirement and give DoD more flexibility.

Committee Reports. A comparison of the HAC and conference committee report explanations reveals that, of the HAC report's two explanations of the circumstances which caused legislative action, one was not carried forward into the conference committee report. This explanation of circumstances was related to DoD's use of fixed-price contracts based on the quality of risk analysis and the variance between the regulatory guidance and actual practice. The HAC report stated that DoD used no effective technique to measure developmental risk, suggesting that the accuracy of its assessments was doubtful. The incorrect measurements then became the basis for choosing the type of contract. When the contract type was incompatible with the level of risk, DoD did not realize the benefits of using a fixed-price contract.

The other major explanation of the circumstances which brought about the legislation appeared in both the HAC and conference committee reports. This explanation clarified how DoD's use of fixed-price contracts created a dilemma in the oversight and control process of RDT&E appropriations. The first section of the last chapter showed that Congress, as a branch of a sovereign government, must exercise its constitutionally delegated responsibilities, among which are the making of policy and the allocating of a limited budget to satisfy compelling, competing national priorities. The committee reports suggest that Congress would want to fund a promising development effort instead of other, less beneficial programs. Later, if a need arises that is more urgent than the promising development effort, Congress, as part of a sovereign government, required the flexibility to satisfy this need if it uses its delegated power for the greatest benefit of the governed.

The committee reports also pointed out, however, that with its duties as a branch of a sovereign government, Congress also recognized it had the obligation to act as a responsible business partner. As an ~~equal~~ partner, the government should bring the same commitment as its industry counterpart to the successful fulfillment of the shared contractual rights and obligations. The obligation in a fixed-price type contractual arrangement of timely payment for goods and services defines what the government's conduct must be as a stable, reliable business partner. It must protect its reputation by first providing firm, enduring requirements and then by funding the resulting fixed-price commitments as the contractor satisfies the requirements. Revised budget priorities could unfavorably affect the government's position as a business partner by either requiring a change to the stated requirements, the negotiated fixed prices, or both.

The conference report further describes that Congress wished to achieve the greater flexibility required as part of a sovereign government while giving DoD a measure of flexibility also. The conferees expressed the desire to avoid the appearance of unnecessarily close scrutiny. The textual evolution of section 8118 given above provides the most graphic demonstration that Congress was willing to let DoD bring its practices in line with existing regulatory guidance without added, unnecessary supervision. Yet the conferees reminded DoD that abuse of this freedom would result in future close scrutiny. The conferees wanted to give flexibility to DoD as long as it achieved a uniform policy for regulatory implementation whose outcome would give Congress the flexibility it needed also.

Hearings. The hearings for the FY 1988 DoD Appropriations Act produced an extensive dialogue between members of the HAC and witnesses from the Department of the Navy (DoN) on the application of fixed-price type development contracts. With regard to the first major explanation of circumstances which brought about the legislation, the Subcommittee examined the quality of risk analysis and the variance between the regulatory guidance and actual practice during both the posture hearings and in the hearings on the DoN's RDT&E budget. As the HAC tried to identify the disadvantages and unfavorable outcomes of fixed-price type contracts, the DoN's witnesses defended the advantages and benefits.

At the end of the posture hearing, during which fixed-price type development contracts were not discussed, the DoN witnesses received many questions for the record. Several of these concerned fixed-price type development contracts. Five of these questions from the posture hearing are discussed below. The first three of the five appeared

consecutively in the published text of the hearing. After two intervening questions, the other two of the five appeared consecutively also. In addition to these five questions, a sixth and last question and answer from a later hearing, at which DoN senior acquisition executives defended their budget, is discussed below. This question and answer supplements the DoN's position given in the answers to the five questions for the record from the posture hearings and, with those five questions, presents a different viewpoint than the HAC report.

The first question listed six programs which had experienced major cost problems and then asked the DoN how it protected itself against these problems. The DoN used the opportunity to explain its policies, their favorable outcomes, and the benefits they gave the taxpayer.

We protect ourselves by requiring our contractor to perform to the contract. Knowing that they will have to perform to the contract serves as an incentive for contractors not to propose a contract that will cause them financial difficulties. Navy policy is not to proceed with full scale engineering development until advanced development has reduced risks sufficiently to enable the contractor to commit to a fixed price type contract that includes not-to-exceed (NTE) prices or priced production options. The fixed price contract may include incentives on cost, performance, or other factors, but will contain a firm upper limit, such as a ceiling price, on the amount of Government liability that will be incurred. The contract price normally includes as expected an expected margin for changes during development. No matter how stable we believe our requirements to be, there will always be changes that occur when we are on the leading edge of technology. Regardless of the type of contract used, there are many unforeseen factors which may give rise to increased contract costs. By providing incentive share lines, a contractor can gain financial reward if he manages the program below cost commitments. By the same token, he is penalized if he exceeds his estimated cost commitments. By maintaining reserves and applying our share of savings from successful contractors to those overruns by unsuccessful contractors we provide a measure of protection against funding problems.

It is our obligation to represent the interests of the taxpayers by requiring contractors to manage programs to meet cost commitments they make in their contracts, reward them if they succeed, and penalize them if they fail to perform successfully.

Overall, competition and fixed price contracts have been instrumental in saving the taxpayers billions of dollars in shipbuilding. Over the long term, those firms that can be successful in a competitive, fixed price environment will be stronger through management commitment to cost control. (197:328-329)

The second question asked the DoN about a standard method for assessing the level of risk. The DoN responded by describing the corporate method of risk analysis and then narrating in detail an example of what the DoN believed was a successful risk assessment from one of its program offices.

The Navy carefully monitors all acquisition programs through all phases of development and production. The Acquisition Plans of all major programs are reviewed by the Office of the Secretary of the Navy to insure that at all points of the acquisition process, optimal acquisition policies are being used. Furthermore, all major programs are formally reviewed using Navy Program Decision Meetings (NPDM) at each acquisition milestone--i.e., program initiation, full scale engineering development, and production--to insure that risk has been adequately reduced to proceed to the next phase. The methodology used for risk assessment on the V-22 program is a good example of how the program managers of major programs make their own assessments of risk in order to recommend appropriate acquisition strategies and to make recommendations to the NPDM. Prior to approval to enter FSED, [full-scale engineering development] a preliminary design phase was conducted on the V-22 to assess the feasibility of existing tilt-rotor technology and, once the feasibility was demonstrated, to reduce risk for the FSED program. The preliminary design phase resulted in proof of concept, detail design of long-lead subsystems, and technical verification. Over twenty tradeoff analyses had been conducted early in preliminary design. More than 7,000 hours of wind tunnel testing yielded data on configuration, drag, rotor effects, aeroelastic boundaries, methods validation, spin, stability, and engine nacelle airflow characteristics. Critical structural and full scale component testing (such as spindle and wing torque box) has also been conducted. In addition, a detailed risk assessment on the V-22 was conducted by NAVAIR [Naval Air Systems Command] technical experts during the period from 1 February through 29 March 1985. This assessment reflected technical judgments and considered the FSED proposals, inherent aircraft system design and development problems, "lessons learned" from past aircraft developments and fleet experience, analyses and data available from preliminary design risk reduction efforts, and Bell-Boeing's historical performance... (197:329)

After the question given above about a standard method of assessing risk, there appeared a question which asked about the existence of a threshold for the level of "manageable" risk. The DoN's negative answer was very brief.

No. The assessment of how much risk is manageable is made on an individual basis, program by program, considering the requirement for the system, the technologies involved, and the program structure. (197:330)

The last two of the five questions from the posture hearings presented in this analysis appeared as a group in the published text. After a one-sentence, lead-in description of a program which was terminated because the contractor did not want to assume responsibility for the overrun, the Subcommittee asked whether a fixed-price contract by itself completely eliminates developmental risk. The second question was based on the assumed answer from the first. This question asked whether the manageable, residual risk was the responsibility of the government or was it transferred to the contractor instead. The DoN confirmed that fixed-price type contracts do not eliminate risk and that this risk was indeed transferred to the contractor. The DoN also used this as an opportunity to restate its policy on risk reduction.

It is probably true that it is never possible to completely "earse" [sic] development risk; however, we are lowering that risk to an acceptable level prior to entering into fixed price contracts. As I have mentioned earlier, our fixed price contracts are preceded by more definitive negotiations of the statement of work. This creates a better defined FSED contract where the responsibilities of both sides, contractor and Navy, are fully understood. The risk of cost overruns is indeed transferred to the contractor in a fixed price contract. If the risk is too high for contractors to sign a fixed price contract for FSED, however, the program is kept in advance development until the risk has been reduced to an acceptable level. This method, we believe, will help to prevent contractors getting into situations where they will not succeed in the performance of a fixed price or capped program to such an extent that we might be forced to terminate. (197:331)

The last question for the record presented in this analysis came from a hearing held almost a month after the DoN posture hearing. The Subcommittee asked whether the level of risk on the V-22 program was compatible with a fixed-price type contract. In its response, the DoN noted that the transfer of risk results from a mutual agreement between the government and the contractor.

Both the contractors and NAVAIR feel that the technical risk is low enough on the V-22 to use a fixed price contract in FSD. The contractors (Bell Helicopter and Boeing Vertol) would not have signed a fixed price FSD contract for \$1.714B if they weren't sure they could do it. During negotiations of the FSD contract the contractors made it clear what it would take, in their estimate, to reduce risk on the program to the point where they would enter a fixed price FSD contract. In order to accommodate the contractors some tasks were deleted and others were moved into the cost reimbursement contract for preliminary design to be proven prior to FSD. (198:509)

In response to the six questions for the record given above, the DoN stoutly defended its acquisition policies with answers which were innocuous. While the HAC was concerned about the unfavorable financial impact of fixed-price type contracts, the DoN believed the discipline of cost control was a definite benefit for contractors, the government, and the taxpayer alike. When the HAC doubted the quality of risk analysis, the DoN explained how the discipline of cost control is entered into after careful risk analysis and risk reduction efforts. The need for a program understandably can affect the level of manageable risk the parties to a contract are willing to accept. For example, an urgent need may count for more than the level of risk when deciding whether to continue a program. When asked to identify who was responsible for this risk, the DoN responded that this risk is indeed transferred to the contractor, who may be a sole source, and, that the transfer involves consideration as part of a bilateral agreement.

These questions and answers show the difficulty in establishing any definite pattern of improper acquisition policy from information the DoN provided.

With regard to the second major explanation of circumstances which brought about the legislation, statements of members of Congress given in hearings on the FY 1988 DoD budget proposal support the reason for creating the statutory requirement given in both of the committee reports. In a 19 March 1987 hearing on the DoN's RDT&E proposal, Mr McDade from Pennsylvania, a member of the HAC's Subcommittee on the Department of Defense, discussed some of the findings of a HAC Surveys and Investigations (S&I) Staff report with Mr Richard Rumph, the Principal Deputy Assistant Secretary of the Navy for Research, Development and Acquisition.

Mr. McDADE. From your side of the table, you make a good case and when I read our S&I report, they make a good case.

One of the things that they talk about is that using this system, the Navy is really making an effort to fully fund these contracts so there can't be investigative oversight on the part of the committee as the contract goes through the process. You are locking the contract in, and our obligation is going to be just the same as if we had approved a multi-year contract, and there really isn't any difference from this side of the table as we try to look at your budget, when you present us with those fixed-price contracts. That is, we pick up the bill and the Navy has their procurement account taken care of, the rest of the budget is still sitting out there with a lot of hard decisions to be made. As you look at where there is flexibility for oversight or trying to cope with difficulties we are going to have in the budget this year, you remove from consideration every fixed price that you have entered into just as if it were a multiyear program. (198:454)

Mr McDade believed the Navy's use of fixed-price contracts for effort funded by RDT&E appropriations brought a commitment upon Congress to fund the effort to completion, even if the contract's period of performance lasted more than one year. The fixed-price created an obligation which the government was bound to honor. As a result, the

Congress could not later adjust the RDT&E appropriation for the fixed-price contract to satisfy revised budget priorities. Mr McDade then clarified the desired level of oversight and control of RDT&E appropriations and how the fixed-price type contract indeed creates a "fixed account."

MR. McDADE. What we do when you present us with your budget in R&D, and you show us what you are attempting to do, is approve annually the appropriations to complete the job that you say you are going to get done within a given fiscal year and we only appropriate that amount.

When you go to this fixed-price contract, we can be looking at a definite number of years from R&D through full-scale engineering [development] through procurement and it is a fixed account then, isn't it?

MR. RUMPH. Yes, sir. As long as that program doesn't run into trouble and completely collapses, and we have not had any experiences where that has happened, we are asking you to do the same as we are doing. That is, once you have given us permission to initiate that program with that type of policy in place then we are looking for your support for fiscal stability in these programs because the one thing that destroys programs most rapidly is when the dollars are not there to meet the obligation that the contractor has to deliver a product on time. (198:454)

Whereas the DoN's policy, for sound business reasons, created a RDT&E budgetary obligation which may well last longer than one year, the desired limit of RDT&E budgetary obligation was for no longer than one year. Shortly before, Mr McDade had compared the effect of the DoN's use of fixed-price development contracts with the effect of using multiyear procurement (MYP) contracts.

MR. McDADE. ...They say there is very little difference from multiyear, except on a multiyear you have to come here and get approval for it, that you get to a fixed price and what you are doing is putting the marbles on the table and signing up to a contract where we just appropriate the money and lose the ability to try to control the oversight function, which you and I agree is essential to this entire process.

MR. RUMPH. Yes, sir. (198:450)

At the end of his questioning, Mr McDade summarized the effect on the HAC's ability to adjust the DoN's RDT&E proposal to conform to budget constraints.

MR. McDADE. That is what we are facing, the allocation of dollars and the more the budget gets locked in in a procurement cycle, the fewer dollars there are to look at the rest of the budget.

It seems we are going to have to devise some kind of a system to talk with you about fixed-price contracts either in terms of degree of risk or something before we let you enter into them. Otherwise, the discretion is locked out of them. And we would hope every one of your programs would succeed. That is our mutual goal, but experience teaches us that ain't going to happen. When you try to get to that, you are just--that is Nirvana, we will never get to that.

To try to lock it in multiyear is going to require more fine tuning, it seems to me.

We don't want to manage what you are doing. I want you to keep doing a good job. The difficulty we have on this side is preserving what we are supposed to do with respect to the budget, make difficult decisions about where to allocate dollars and keep programs going. It is a tough problem. (198:454-455)

At the end of the hearing, the Subcommittee gave the witnesses over 100 questions for the record. One of them dealt with the DoN's practices on congressional oversight and control.

QUESTION. The report quotes Navy officials as saying that the policy is targeted toward limiting Congressional oversight and control of R&D funding and production quantities. One official stated "OSD and the Congress can't willy-nilly around with our funding and give it to other programs. This doesn't stop the Congress, but it makes it more difficult." Has the Navy ever supported this as a benefit of this policy, and if not, why do Navy officials hold that view?

ANSWER. There is a little bit of truth in that statement; however, it is not entirely true. The policy was not targeted toward limiting Congressional oversight and control. Rather, it was targeted toward managing a contract situation that was out of control. We were in an environment of high-priced sole source contractors who were continually overrunning multi-million dollar cost-type contracts. Much of the blame for this out-of-control situation has to rest on the Government. We have changed that environment to a competitive, fixed price one, with better definition and closer management of both contractor and Government. It must be remembered, however, that in negotiating fixed price/capped arrangements and tooling amortization, the Navy and its contractors are

assuming a greater risk. In return, we must ask the support of Congress in backing this arrangement. We can only continue to negotiate in good faith if we are able to make good on our promise of funding at negotiated amounts. Accordingly, we must ask your help in protecting these programs from budget cuts. (198:488)

The DoN denied the assertions that it sought to overturn the oversight and control function of the legislative branch so that it could pursue its own interests. The DoN restated its intent from the hearings, given above, that its goal was to use these contracts as part of a more responsible, favorable business strategy. In order to use and benefit from this strategy, however, Congress had to accept a commitment and surrender a degree of flexibility which it was, by right, entitled to exercise.

On 27 April 1987, Lt Gen Bernard P. Randolph, the Military Deputy for Acquisition and Assistant Secretary of the Air Force for Acquisition, gave testimony on the Air Force's RDT&E budget proposal (198:663). At the end of the hearing, the Subcommittee gave the witness questions for the record. One of these questions reflected favorable interest in an Air Force practice which accommodated budget reductions to fixed-price development contracts.

QUESTION. A recent report by this committee's S&I Staff concluded, after talking to Air Force officials, that "program managers anticipate funding cuts and include clauses in fixed price contracts that allow reimbursement to contractors only for those additional costs incurred that are attributable to funding delays. This prevents complete reopening of contract negotiations due to funding cuts." This seems like a good procedure, since it increases the government's flexibility. Would you explain this Air Force practice in more detail? Is the use of such provisions encouraged or directed by Air Force policy?

ANSWER. The Air Force often does not fully fund fixed-price contracts which are for other than production, i.e., demonstration/validation, full-scale development efforts, but does fund a portion of the contracts in accordance with how much funding is available. The Air Force includes a clause in these contracts which allows the negotiation of an equitable adjustment should the additional funds become available at a

date later than anticipated. This procedure allows an adjustment to the contract costs and/or schedule to the extent the contractor can substantiate and the Government agrees that additional costs or delays were incurred as a result of the funding delay or cut. Funding cuts can result, however, in major program and contract restructuring. The Air Force Systems Command Federal Acquisition Regulations Supplement provides a standard clause entitled, "Limitation of Government's Obligation." This clause provides for use of this procedure and is attached. (198:719)

This clause, then, defines the rights and obligations of the contractor and the government when budget reductions preclude the government from satisfying its contractual commitments and entitles the contractor to additional consideration over that which was originally agreed upon. The interest in this clause reflects the desire to find a way to not only receive the intended benefit from using fixed-price contracts for weapon system development, but also to limit, as much as possible, the unfavorable outcome when exercising the right of flexibility.

Chapter Summary

The hearings as well as the HAC report accompanying H.R. 3576 provide insight into the HAC's concerns about the mismatch between the level of risk in a development program and the use of a fixed-price type contract. The remedy of increased oversight would limit the use of fixed-price type contracts to only the acquisitions which would satisfy the two requirements of realistic pricing and allocation of risk. Congress hoped DoD would respond by conforming its use of fixed-price type contracts to existing regulatory guidance. The change in acquisition practices would eliminate the unfavorable outcomes for the contractor and DoD of using fixed-price development contracts.

The reports from the HAC and from the House and Senate conferees, as well as the committee hearings, show that Congress enacted this legislation in response to a dilemma DoD created in the

oversight and control process by the use of fixed-price development contracts. This dilemma arose when budget constraints kept the government from fulfilling its roles as both a sovereign power and an equal partner. On the one hand, the government had the obligation as a sovereign power to revise spending priorities based on a current assessment of existing needs. On the other hand, the government, as an equal partner, had not only the obligation to fund existing fixed-price contractual commitments but also the need to maintain its credibility in a stable, reliable business relationship. Congress wished for the government to have the budgetary flexibility required of a sovereign while preserving the ability to satisfy business obligations and maintain the good reputation required of a partner. To solve this dilemma, Congress created a remedy which required determinations on realistic pricing and allocation of risk.

The textual evolution and the conference report show that Congress, in creating the remedy, chose the more flexible language of section 8118 over the earlier, more restrictive language of section 8105. The textual revisions limited the number of contracts subject to statutory oversight, reduced the frequency of reporting, changed the timing of reporting, removed the requirement for personal involvement of the Secretary of Defense, and freed DoD from having to justify its choice to use a fixed-price type development contract. In giving DoD a more flexible remedy, Congress believed the legislation would still have the effect of limiting the use of a restrictive type of pricing arrangement. This limitation would achieve the purpose of greater budgetary flexibility without undesirable side-effects. Congress could then choose the composition of goods and services based on budget limitations and relative program and military merit.

IV. Section 8085 of the Fiscal Year 1989 Department of Defense Appropriations Act (Public Law 100-463)

The previous chapter described the provision on fixed-price type development contracts which began as part of the HAC's legislative proposal for FY 1988 DoD appropriations. This provision was later revised and became a statutory requirement as part of P.L. 100-202. As part of reviewing DoD's FY 1989 budget request, the HAC continued its oversight of DoD's use of fixed-price type development contracts and included a provision, section 8086, in H.R. 4781, the House of Representatives' legislative proposal for FY 1989 DoD appropriations. This provision later became section 8085 of P.L. 100-463, the FY 1989 DoD Appropriations Act. This chapter presents the legislative history of section 8085 and then analyzes this information. The chapter concludes with a summary of the findings from the analysis.

Legislative History

The history of this provision began in January of 1988 with the submission of the FY 1989 Unified Federal Budget. This budget proposal consisted of several volumes, one of which was an appendix which contained detailed information on the budget's various appropriations (39:np). For each agency in the executive branch, the appendix included descriptions of the work to be performed, a suggested text of appropriation language, the different budget schedules, and recommendations for general provisions (39:np). One subpart consecutively re-printed all general provisions related to DoD that were in P.L. 100-202 and, for each provision, recommended retaining, deleting, or revising these for FY 1989. The suggested omission of the

FY 1988 statutory requirement on the use of fixed-price type development contracts from legislation for FY 1989 DoD appropriations appeared as follows:

[Sec. 8118. None of the funds provided for the Department of Defense in this Act may be obligated or expended for fixed price-type contracts in excess of \$10,000,000 for the development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense: Provided further, That the Under Secretary report to the Committees on Appropriations of the Senate and House of Representatives in writing, on a quarterly basis, the contracts which have obligated funds under such a fixed price-type developmental contract.] (39:I-G63)

As part of evaluating the FY 1989 DoD budget proposal, the HAC's Subcommittee on the Department of Defense held 38 days of hearings, intermittently from 1 February 1988 through 4 May 1988 (194:4). The testimony consisted of 5,100 pages of transcript, of which 850 pages were not printed because of security classification reasons (194:4). An examination reveals that the published record of these hearings consists of 4279 pages in 7 volumes. Appendix B of this thesis presents all testimony in this published record related to using fixed-price type contracts for weapon system development.

On 10 June 1988, the HAC's Chairman of the Subcommittee on the Department of Defense reported H.R. 4781, the House bill for FY 1989 DoD appropriations (144:H4151,D739). This bill included a section on the use of fixed-price type contracts for weapon system development in title VIII.

Sec. 8086. None of the funds provided for the Department of Defense in this Act may be obligated or expended for fixed price-type contracts in excess of \$10,000,000 for the

development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense: Provided further, That at least thirty days before making a determination under this section the Secretary of Defense will notify the Committees on Appropriations of the Senate and House of Representatives in writing of his intention to authorize such a fixed price-type developmental contract and shall include in the notice an explanation of the reasons for the determination. (192:75-76)

On the same day, the HAC filed the committee report which accompanied H.R. 4781 (144:H4151). Title IV of the report addressed RDT&E provisions of H.R. 4781 and explained the need for the legislation on fixed-price type development contracts.

In the Statement of the Managers accompanying the DoD Appropriations Act for fiscal year 1988, Congress expressed its willingness to impose more severe restrictions on the use of fixed-price RDT&E contracts unless congressional directions and intent in this area were complied with. The Committee notes that reporting requirements established by this Act have not been adequately addressed, and that OSD enforcement of existing policy in this area has not yet been demonstrated. The Navy's revised acquisition policy, as it relates to contract type, appears to be little more than a restatement of the existing policy. In short, OSD has not exhibited the vigorous leadership which is needed to enforce existing policy and congressional directions. Hence, the Committee recommends that the existing general provision be retained, with the addition of a proviso requiring prior notification of intent to obligate. This proviso is identical to the language recommended by the Committee last year. (194:147)

Title VIII of the report addresses the general provisions in H.R. 4781 and contains additional information. The "write-up" mentioned below refers to the explanation in title IV that is given above.

The Committee does not agree to the budget proposal to delete language which places restrictions on fixed price RDT&E contracts. Instead, the Committee recommends amending the section to require prior notification of planned obligations of RDT&E funds for fixed price contracts. For

additional details, see the write-up on this subject in the Research development [sic], test, and evaluation section of this report. (194:206)

The last piece of information appeared in the section of the committee report entitled "House of Representatives Report Requirements." In this section were statements which described the effect of provisions which changed the application of existing law (194:210). One of these statements described the change between section 8118 of P.L. 100-202 and the related provision in H.R. 4781 as follows: "Section 8086 has been amended to require prior notification of planned obligation of RDT&E funds for fixed price contracts" (194:212).

On 21 June 1988, H.R. 4781 was brought before the House of Representatives for debate (145:H4488). The House resolved itself into the Committee of the Whole, and each title of the bill was read, ordered printed in the Congressional Record, and considered for amendment (145:H4498-H4514). An examination of the text of the Congressional Record reveals that section 8086 was neither debated nor amended during the deliberations on title VIII (145:H4506-H4514). The Committee of the Whole completed its work on the bill and agreed to report H.R. 4781 back to the House with amendments and recommend passage of the amended bill (145:H4515). The House of Representatives then voted on the amendments as a block and passed H.R. 4781 as amended (145:H4515,D799).

On 22 June 1988, the House notified the Senate that H.R. 4781 had passed (146:S8421). The Senate received H.R. 4781 and referred it to the Senate Appropriations Committee (SAC) (146:S8421). The SAC reported H.R. 4781 on 24 June 1988 and another print of the bill was published (147:S8561,D826; 203:1). The SAC's version of H.R. 4781 proposed an amendment which would delete section 8086 (203:83). The

committee report was submitted on 24 June 1988 (147:S8561,D826). The report gave the following explanation for eliminating the statutory requirement from the DoD appropriations bill:

Fixed-Price Contracts.--The Committee recommends deletion of the House provision pertaining to fixed-price development contracts. This matter appeared to be headed toward resolution in the Defense authorization bill conference at the time of the Committee's markup. Pending the outcome of this issue, the Committee will withhold judgment on the issue until conference on the appropriations bill. (Huse Sec. 8086) (194:294)

The Senate began its consideration of H.R. 4781 on 4 August 1988 (153:S10868,D1023). The text of the bill with amendments, which had been reported from the SAC, was published in the Congressional Record and reflected the deletion of section 8086 (153:S10868-S10883). The following day the Senate resumed its consideration of H.R. 4781 and adopted all of the SAC's proposed amendments (154:S10936). The deliberations continued until 11 August 1988, when, by a vote of 90 in favor to 4 opposed, the Senate passed H.R. 4781 with amendments (158:S11585,D1077-D1078). An examination of the text of the debate and amendments for H.R. 4781 in the Congressional Record reveals that the Senate did not address section 8086 after it had adopted the SAC's amendments on 5 August 1988 (154:S10936-S10961,S10969-S10975,S11001-S11004,D1032-D1033; 155:S11090-S11100,S11121,D1041-D1042; 156:S11191-S11195,S11233-S11236,D1052; 157:S11307-S11343,D1062; 158:S11357-S11399,S11482-S11485,S11486-S11489,S11536-S11575,S11576-S11585,D1077-D1078; 159:S11673-S11676,S11678). The Senate insisted on its amendments, requested a conference, and appointed conferees (158:S11585). Also on 11 August 1988, a third print of H.R. 4781 was published with the amendments of the Senate numbered (183:1). The

SAC's recommended deletion of section 8086, now enacted by the Senate, was re-printed again, now as Senate amendment #196 (183:85-86).

On 7 September 1988, the House received a message that the Senate had passed H.R. 4781 with amendments (160:H7067). On 14 September 1988, the HAC's chairman of the Subcommittee on the Department of Defense requested the unanimous consent of the members of the House to disagree with the Senate amendments and agree to the requested conference (161:H7561). There was no objection, and the Speaker of the House appointed conferees (161:H7571).

From 16 September 88 through 28 September 1988, the conferees met to resolve the disagreements between the House and the Senate (163:D1163; 164:D1167; 165:D1179; 166:D1193; 167:D1201; 168:D1213; 169:D1223; 171:D1237). During conference committee action on H.R. 4781, the conferees resolved amendment #196 by renumbering section 8086 to section 8085 and then restoring the the text as originally reported by the HAC. The conference report described the agreement as follows:

Amendment numbered 196:

That the House recede from its disagreement to the amendment of the Senate numbered 196, and agree to the same with an amendment as follows:

Restore the matter stricken by said amendment amended to change section number as follows: 8085, and the Senate agree to the same. (186:9)

The conference report's joint statement of the managers gave the following explanation for restoring the stricken language:

Amendment No. 196: Restores language proposed by the House and stricken by the Senate but changes the section number. This provision restricts obligation of funds for fixed-price type development contracts until a written determination is made regarding program risk, prohibits the delegation of this responsibility below the level of Assistant Secretary of Defense, and provides for Congressional notification prior to issuance of said determination. (186:103)

On 30 September 1988, the conference report and joint statement was brought before the House membership for consideration (173:H9066). The House agreed to the conference report and joint statement by a recorded vote of 327 in favor to 77 opposed (173:H9074,D1259). The House sent the conference report and joint statement to the Senate, where, after further debate, the Senate agreed also (173:S13885,D1256-D1257). In their deliberations, neither the House nor the Senate debated the use of fixed-price type development contracts (173:H9066-H9074,S13835-S13885,S13939,D1256-D1257,D1259). On 1 October 1988, the enrolled bill for H.R. 4781 was presented to the President for signature (174:H9366).

The President signed the enrolled bill on 1 October 1988, and H.R. 4781 was then published as P.L. 100-463 (175:D1275; 177:H9634). The language for fixed-price type development contracts, restored by the conference committee and now part of public law, reads as shown below.

Sec. 8085. None of the funds provided for the Department of Defense in this Act may be obligated or expended for fixed price-type contracts in excess of \$10,000,000 for the development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense: Provided further, That at least thirty days before making a determination under this section the Secretary of Defense will notify the Committees on Appropriations of the Senate and House of Representatives in writing of his intention to authorize such a fixed price-type developmental contract and shall include in the notice an explanation of the reasons for the determination. (119:102 STAT. 2270-32)

Analysis

The analysis first discusses the textual evolution of section 8085 and then presents material from the two explanatory sources of legislative history, committee reports and hearings, which provide information on this provision.

Textual Evolution of Section 8085. Comparing the different texts of the provision for fixed-price type development contracts which emerged from the legislative process for FY 1989 DoD appropriations yields no new insights. The House offered a provision which the Senate rejected. Later the Senate reversed itself and concurred. Throughout the process, the language of the original text itself did not change.

Committee Reports. The policy expressed in the committee report from the HAC was an outgrowth of the policy expressed in the joint explanatory statement which had accompanied the conference report for the FY 1988 Continuing Resolution, P.L. 100-202. In the joint statement, the conferees expressed their willingness to use more restrictive measures if the procurement practices for the use of fixed-price type contracts were not uniform throughout DoD and in compliance with regulatory guidance. The HAC report implied that the circumstance which brought about the statutory requirements in section 8085 was OSD's inability to use the more flexible requirements in section 8118 of P.L. 100-202 to change the procurement practices of DoD's acquisition community. The HAC noted that the response to the statutory reporting requirements was inadequate, and that one military department, the DoN, had insufficiently modified its prior behavior. If more flexible requirements did not bring about the desired effect of compliance with congressional directions, then a more rigorous remedy would be used to achieve the statutory purpose of the prior year's

legislation. The HAC wrote this more rigorous remedy into its legislative proposal for FY 1989 DoD appropriations.

The SAC, and later the Senate, disagreed with the House provision. The SAC report indicated that another approach to dealing with the issue of fixed-price type development contracts was emerging as part of the legislation for FY 1989 DoD authorizations. This legislation will be discussed in the next chapter of this thesis. The Senate chose to defer the final decision on the disagreement until it knew the outcome of the FY 1989 DoD authorization process.

The joint explanatory statement accompanying the conference report for H.R. 4781 indicates that the Senate conferees reversed the position taken earlier by the SAC and supported by the Senate. They agreed to restore the provision for fixed-price type development contracts to the legislation for FY 1989 DoD appropriations. This restoration is indeed peculiar, since the Senate had included a companion provision for fixed-price type development contracts early in the legislative process for FY 1989 DoD authorizations. The provision in fact did emerge from this legislative process referred to in the SAC report and mentioned in the prior paragraph. The joint explanatory statement is opaque as to the motives of the Senate conferees for their reversal. The joint statement is also opaque as to the reasons why the House conferees included section 8085 in the FY 1989 DoD Appropriations Act when other House conferees agreed to the companion section on fixed-price type development contracts in the FY 1989 DoD Authorization Act. The joint statement merely restates the language in section 8085; it fails to provide the information needed to understand the congressional intent behind the conference agreement.

Hearings. The hearings yield insights which clarify DoD's position on the statutory purposes. The hearings also brought out DoD's reason for its recommendation to exclude a statutory requirement for fixed-price type development contracts from legislation for FY 1989 DoD appropriations. In response to a question submitted for the record at the conclusion of the 25 February 1988 defense posture hearing, the DoD stated no objections to the purpose of the legislation (199:137). It too wished to allocate program risk between the government and industry in a sensible way (199:137). However, the DoD believed this allocation was achievable without resort to legislative remedies (199:137).

Not only do the hearings explain the DoD position, they are also a source of information on how members of the HAC's Subcommittee on the Department of Defense responded to that position. In a 4 May 1988 hearing on procurement acquisition reform, Mr McDade from Pennsylvania, a member of the Subcommittee, discussed his concern with Dr Costello, the DoD witness at the hearing. Mr McDade was concerned that, given the recently enacted legislation on fixed-price type development contracts, the FY 1989 DoD budget proposal value for these contracts was unacceptably high. He implied that OSD's implementation had not produced the desired effect and that administrative remedies were unable to solve a recurring problem. From this particular segment of the dialogue also emerged a statement of policy, not mentioned in any committee report for H.R. 4781, on which there was apparently a widespread consensus.

MR. McDADE...We got the DOD's budget up and your budget opposed our provision. In other words, it came out against it...I have a letter from you in which you say you no longer think the law is necessary...Our staff is advised that in the fiscal year 1989 budget, it appears there is \$3.5 billion in

fixed price R&D and, as the staff gets a cut at it, they say they think it is even broader than that.

So we wrote a law saying there is a problem. There is too much risk asking a contractor to do fixed price R&D. It is not sound government policy. We have a broad consensus...Now you are back with a memo that says we are not going to try to have a law. We will try to administer it and it sounds like there is more than \$3.5 billion in fixed price R&D contracts going on, which sounds pretty widespread to this member of the committee.

DR. COSTELLO. It was widespread. Those are mainly carry-ons from contracts we already had in place. I have approved only four new fixed-price development contracts to date under the requirement in the Fiscal Year 1988 Appropriations Act.

MR. McDADE. I hope you are right because I thought this was a non-problem. It seems to be recurring. (200:620)

A short time later, Mr McDade gave his opinion on the value of continuing the requirement.

MR. McDADE. I would respect anybody who wanted to have flexibility, but I am not going to sit by and see the practice continue after there is apparently a consensus that it should evaporate and go away.

In fact, there was a law specifically passed that said "hold on, here." So if you are asking for some flexibility, I am not unwilling to give some flexibility but I am certainly not willing to abandon the policy. (200:622)

After Dr Costello's response to these assertions, Mr McDade went on to imply that a statutory requirement was necessary to overcome the inertia, and even active resistance, within DoD.

MR. McDADE. You are aware the law said only those over \$10 million would come to your attention.

DR. COSTELLO. We really don't think we need that much help. I look at the major programs.

MR. McDADE. Past history would say you need a lot of help. Past history says you have got a calamity on your hands. That is past history and that is what we have got to deal with.

I am perfectly willing to accept the fact that you want to have new starts, but history would tell you that maybe you are not going to be able to do that.

You are talking about cultural problems, institutional problems, layers of bureaucracy that may oppose you. (200:622)

Chapter Summary

In P.L. 100-202, Congress extended its oversight function into DoD's selection of contract type. Congress implemented its oversight through a statutory requirement. The desired effect of the legislation was to limit the number of fixed-price type development contracts to acquisitions which satisfied criteria of realistic pricing and allocation of risk. Through section 8085 of the FY 1989 DoD Appropriations Act, Congress continued its oversight of DoD's use of fixed-price type development contracts; however, DoD wished to achieve the desired legislative effect by methods other than statutory requirements. This was the reason for DoD's request that legislation for FY 1989 DoD appropriations have no requirement in this area.

Based on the circumstance of what was believed to be insufficient progress in achieving the desired purpose of the prior year's legislation, Congress disagreed. The textual evolution of section 8085 as well as the explanatory sources of legislative history are evidence that Congress believed more flexible remedies were insufficient. The hearings also reveal the concern, continuing from the HAC committee hearings and report of the prior year, about the unfavorable outcomes to contractors from the risk of fixed-price type development contracts. Congress believed that only a more rigorous statutory remedy than the one used in P.L. 100-202 would have the desired effect of limiting fixed-price type development contracts to acquisitions which satisfied criteria of realistic pricing and allocation of risk. This remedy emerged as section 8085 of the FY 1989 DoD Appropriations Act.

V. Section 807 of the Fiscal Year 1989

National Defense Authorization Act (P.L. 100-456)

Until now, the narrative has described legislation on fixed-price type development contracts initiated in the House of Representatives. Both statutes for FY 1988 and 1989 defense appropriations included sections to implement congressional oversight in this area. Although the Senate's initiative in this area lagged behind the involvement of the House, the Senate began to show an interest and initiated its own legislation for fixed-price type development contracts. This legislation became section 807 of P.L. 100-456, the FY 1989 National Defense Authorization Act. This chapter presents the legislative history and the analysis of this provision. The chapter concludes with a summary of the findings from the analysis.

Legislative History

Overview. A summary of the major stages through which this legislation passed is provided in this overview since, of the four public law sections examined in this thesis, section 807 of P.L. 100-456 has the longest and most complicated history. As will be seen, section 807 had its origins in the acquisition management improvement initiatives of S. 2254, the Defense Industry and Technology Act of 1988. The Senate Armed Services Committee (SASC) incorporated these initiatives into S. 2355, the Senate bill for FY 1989 DoD authorizations. Before the Senate could pass S. 2355, the House passed and sent to the Senate H.R. 4264, the House companion bill for FY 1989 DoD authorizations. The Senate amended the entire text of H.R. 4264 by substituting the text of S. 2355. The Senate then passed H.R. 4264 as

amended and sent it back to the House with a request for conference. In early July, the conference committee resolved the House and Senate disagreements. The enrolled bill for the FY 1989 DoD Authorization Act was sent to the President for signature. The President returned the enrolled bill to Congress with a veto message on 3 August 1988.

Little more than a week later, the Senate passed S. 2749, thereby taking the initiative to produce another defense authorization bill for Presidential approval. The House took no immediate action on S. 2749. The Senate later amended the entire text of H.R. 4481 by substituting the text of S. 2749. The House and Senate conferees negotiated H.R. 4481 and, on 28 September 1988, the House and Senate agreed to the conference report. Congress sent the President the second enrolled bill for FY 1989 DoD authorizations and the President signed H.R. 4481 into law as P.L. 100-456. Each bill in the entire sequence--S.2254, S.2355, H.R. 4264, S. 2749, and H.R. 4481--contained a section on fixed-price development contracts. The legislative history will examine each of these sections in turn.

S. 2254. The origins of section 807 of P.L. 100-456 began in the Spring of 1987 (133:S3634). At that time, the SASC's Subcommittee on Defense Industry and Technology, as part of evaluating DoD's annual authorization proposal, held hearings to examine the condition of America's industrial and technological bases (133:S3634). Witnesses testified at these hearings that the increasingly adversarial relationship between DoD and its contractors was a problem that needed to be solved (133:S3634). In August of 1987, the Subcommittee established an Ad Hoc Defense Industry Advisory Group (IAG) of senior defense industry executives to foster an improved dialogue between DoD and industry (133:S3634). The IAG's charter was to identify the

"aspects of the acquisition process that stifle innovation, drain good talent away from defense industries, and threaten the technological and industrial lead that is the foundation of our Nation's security" (133:S3634). On 5 February 1988, the IAG released its report (133:S3634). The report contained 20 issue papers which addressed the particular areas of concern to the IAG (133:S3634). The IAG also included specific recommendations for policy and legislative changes (133:S3639). The text of this report, with recommendations and draft legislation, appeared in Part 7 of the published hearings for the Senate's FY 1989 legislative proposal for DoD authorizations.

The sixth issue paper in the IAG report described the three practices which DoD used to transfer increasingly large amounts of risk to industry. The text of this issue paper as it appeared in the published hearings is shown below.

SHIFTING UNDUE RISK TO THE CONTRACTOR

Disregarding the lessons learned from failures of similar procurement methods in the past, the DoD is now employing procurement methods which shift unmeasurable risks to contractors in three different ways. First, contractors are being required to pay a portion, sometimes substantial, of the development cost of Defense Department systems under a practice called "cost sharing". Second, contractors are being required to enter into fixed-price contracts early in development, when the uncertainty is so substantial that it is virtually impossible to know the precise costs of new systems. Third, contractors are being asked to provide the Defense Department with priced production options before full scale development has begun. A recent acquisition policy letter issued by the Under Secretary of Defense (Acquisition) recognizes the second problem and proposes to change DoD policy on this subject. All of these requirements shift undue risk for [sic] the contractor, drain industry resources from investments in technology and productivity, and will ultimately affect our nations' [sic] ability to maintain technological superiority. (211:682)

After this introductory explanation of the issue, the paper then gave a background section which addressed each of the three practices

separately. The use of fixed price development contracts was one of those practices.

The design and production of a complex new weapon system or other items of defense equipment typically involves development and application of new technology. Thus, it is virtually impossible to know with any certainty how much that development will cost. Technical superiority is a fundamental principle of American military strategy, and development contracts should be structured in a way which provides the government and the contractor flexibility to continually incorporate emerging technology and to trade-off cost and technical requirements to meet evolving threats.

Congress has evidenced its recognition of some of these problems by including a Section 8118 in the Fiscal Year 1988 DoD Appropriations Act. This section is intended to regulate the use of fixed price contracts in excess of \$10 million with regard to major weapon system acquisition, by requiring a determination by the Undersecretary of Defense for Acquisition that such a contract can only be used where program risk has been reduced to the extent that realistic pricing can occur, and that the contract type would permit an equitable and sensible allocation of program risk between the contracting parties. While this is a step in the right direction, it does not specifically preclude cost sharing nor does it inhibit the Government's practice of seeking priced (or not-to-exceed) production options prior to development. Industry is also skeptical about DoD's willingness to execute these limitations appropriately. (211:683)

The issue paper presented what the IAG believed were DoD's concerns about restrictions on the transfer of risk.

The primary concern which DoD may express regarding this proposal is that it has only a limited amount of funds for each program, and that it simply cannot afford to give each contractor developing a new system an open-ended commitment to pay whatever development expenses are incurred. In addition, DoD has asserted that cost-type contracts may encourage contractors to incur more costs, rather than trying to find least-cost solutions to difficult problems. Finally, the Department would probably assert that the involvement of the Secretary in each acquisition decision is unrealistic and unduly burdensome on him. (211:683)

The issue paper then gave the IAG's response to the concerns which it attributed to the DoD.

In response to these concerns, first, it is not suggested by industry that open-ended commitments be made. The responsibility to manage a development program within the

available funds should be equally shared by the government and the contractor. This can be accomplished by assignment of qualified government program managers and acquisition personnel. Second, contractors can be motivated through incentive provision [sic] and statements of work which require cost trade-offs between various technical solutions. Further, contractors will recognize that their ability to survive downstream production competition is dependent upon their ability to offer innovative and cost-effective development solutions. Third, the Service Secretary will find this solution burdensome if the Service as a rule tries to continue the current practice. Compliance with the proposed legislative language should limit his involvement to only a very small number of programs. (211:683-684)

In conclusion, the issue paper offered the IAG's recommended solution to this area of concern.

The solution to this problem would provide that, as a general rule, only cost-type contracts should be used for development. In order to enforce this, the concurrence of the Secretary of Defense should be obtained before a fixed-price development contract is used...Recent changes to DoD Directive 5000.1, as well as the previously mentioned policy letter, are generally consistent with this solution. It should be noted, however, that the extent of compliance by the military departments with the new directive and letter is uncertain.

As a minimum, the language regarding fixed price development contracts in Sec. 8118 of the FY '88 Continuing Resolution should be strengthened and expanded to prohibit cost sharing and premature pricing of production options prior to the results of the development and incorporated into permanent law. (211:684)

The IAG's package of draft legislation which appeared in the published hearings was intended to serve as illustrative provisions to implement its policy recommendations (211:730-755). One of these drafts addressed the use of fixed-price type development contracts.

6. DRAFT RELATING TO RECOMMENDATION ENTITLED "SHIFTING UNDUE RISK TO THE CONTRACTOR"

SEC. __. LIMITATIONS ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

Section 2306 of title 10, United States Code, is amended by adding at the end the following:

"(i)(1) The head of an agency may not award a firm fixed-price contract for the development of a major system or a subsystem of a major system in excess of \$10,000,000 unless

the Under Secretary of Defense for Acquisition determines, in writing, that--

"(A) program risk has been reduced to the extent that realistic pricing can occur; and

"(B) the use of a firm fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

"(2) The Under Secretary of Defense for Acquisition may not delegate his authority under paragraph (1) to any person who holds a position outside the Office of the Secretary of Defense or a position below the level of Assistant Secretary of Defense.

"(3) The Under Secretary shall transmit to the Committees on Armed Services and Appropriations of the Senate and House of Representatives once each quarter a written report containing a list of all contracts described in paragraph (1) that have been awarded during such quarter." (211:742)

The SASC's Subcommittee on Defense Industry and Technology distributed the IAG report through the media, industry associations, trade press, and people who had an active interest in the acquisition process (133:S3635). The Subcommittee received over 80 responses with comments on the IAG's issues in response to this distribution (133:S3635). Based on the comments, the Subcommittee developed S. 2254, the Defense Industry and Technology Act of 1988 (133:S3635).

The Subcommittee's chairman, Senator Bingaman, together with Senators Gramm, Dixon, and Wirth, introduced S. 2254 on 31 March 1988 (133:S3544). The bill was published as a separate print (206). The text of the bill was also included in the Congressional Record and in Part 7 of the published record of the SASC's hearings for DoD's FY 1989 authorization proposal (133:S3636-S3639; 211:631-658). S. 2254 addressed nine issues, one of which was fixed price development contracts. The text of the section on fixed-price type development contracts from the print of S. 2254 is as follows:

SEC. 3. LIMITATIONS ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

Section 2306 of title 10, United States Code, is amended by adding at the end the following:

"(i)(1) The head of an agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines, in writing, that--

"(A) program risk has been reduced to the extent that realistic pricing can occur; and

"(B) the use of a firm fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

"(2) The Under Secretary of Defense for Acquisition may not delegate his authority under paragraph (1) to any person who holds a position outside the Office of the Secretary of Defense or a position below the level of Assistant Secretary of Defense.

"(3) The Under Secretary shall transmit to the Committees on Armed Services and Appropriations of the Senate and House of Representatives once each quarter a written report containing a list of all contracts described in paragraph (1) that have been awarded during such quarter." (206:3-4)

After its introduction, S. 2254 was referred to the SASC for further action (133:S3544).

As part of evaluating the FY 1989 DoD authorization request, the SASC held 45 days of hearings in February, March, and April of 1988 (210:6). During this three month period, the SASC's Subcommittee on Defense Industry and Technology held hearings on five days to receive testimony from witnesses about the provisions of S. 2254, as well as other weapon system acquisition issues not specifically addressed by the bill. The published record of these hearings, held on 18, 19, and 30 March 1988 and 13 and 14 April 1988, consists of a volume with 755 pages of text. Appendix C of this thesis presents all testimony in this published record related to using fixed-price type contracts for weapon system development. The SASC incorporated findings from the hearings into S. 2355, the Senate's legislative proposal for

what would later become P. L. 100-456, the FY 1989 DoD Authorization Act (210:13).

S. 2355. The SASC reported S. 2355 on 4 May 1988 (134:D551). Title VIII of S. 2355 deals with acquisition policies and management (207:91). A comparison of title VIII with S. 2254 reveals that title VIII included provisions for all but one of the nine issues addressed by S. 2254. The section on fixed-price type contracts from S. 2254 was re-written and carried forward into S. 2355.

SEC. 802. GUIDANCE ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

(a) **IN GENERAL.**--Section 2306 of title 10, United States Code, is amended by adding at the end the following:

"(i)(1) The Secretary of Defense shall prescribe guidelines that provide that a fixed-price contract should be awarded in the case of a development program only when--

"(A) the level of program risk permits realistic pricing; and

"(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

"(2) The head of an agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines and states in writing that the award of such contract is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the guidelines prescribed under such paragraph.

"(3) The Under Secretary of Defense for Acquisition may delegate his authority under paragraph (2) only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

"(4) This subsection does not apply to the Coast Guard or the National Aeronautics and Space Administration.".

(b) **PERIOD FOR ISSUANCE OF GUIDELINES.**--The Secretary of Defense shall issue the guidelines required by subsection (i) of section 2306 of title 10, United States Code (as added by subsection (a)), not later than 120 days after the enactment of this Act. (207:93-94)

On the same day, the committee report was filed which accompanied S. 2355 (134:S5309,D551). Title VIII of the report addressed

acquisition management and policies and explained the need for legislation on fixed-price development contracts as follows:

The committee has received substantial testimony on the improper use by the services of fixed-price type contracts for research and development programs involving such a high degree of innovation that realistic pricing is not possible. In such cases, the contractor bears an inordinate amount of risk, which creates the potential for the contractor either sustaining losses through unanticipated costs or the government having to renegotiate the contract. Such consequences can be avoided by using contract types more appropriate to the allocation of risks and management of costs.

Existing directives and memoranda do not provide sufficiently detailed criteria on those circumstances in which fixed price development contracts may be appropriate, nor do they establish requirements for appropriate levels of supervision within the services. Section 802 requires the Department to prescribe guidelines to restrict the use of fixed-price type contracts to those cases in which the degree of program risk is such that realistic pricing can occur and an equitable and sensible allocation of program risk is possible. In addition, the legislation codifies and revises a requirement established last year requiring approval by the Under Secretary of Defense for Acquisition of certain firm-fixed price development contracts valued at more than \$10,000,000. The committee emphasizes that this dollar value, and the reference to firm-fixed price contracts, relates solely to the approval authority of the Under Secretary, and does not reflect a judgment that fixed-price development contracts are appropriate simply because they are of a lesser value or involve a contract form other than firm fixed-price. The committee recognizes that there are circumstances in which fixed-price development contracts are appropriate (e.g., when costs and foreseeable program risks can be reasonably anticipated), and the committee expects the Department to establish clear guidelines under this section for use of such contracts.

It is the intent of the committee that this section be applied in a manner that best serves the government's interests in the long-term health of the defense industry, and that this section not be used as the basis for litigating the propriety of an otherwise valid contract. Nothing in this section shall be construed to affect the requirements of section 8118 of the Department of Defense Appropriations Act, 1988. (210:104-105)

On 9 May 1988, the Senate began its consideration of S. 2355 (134:S5270,D551). An examination of the texts of all of the amendments which were offered during the proceedings and printed in the

Congressional Record reveals that the Senate considered one amendment related to section 802 (134:S5313,D551; 135:S5406-S5409,D557; 136:S5479-S5481,D568; 137:S5653-S5663,D577-D579; 138:S5828-S5842,D597-D598; 139:S5965-S5967,D597-D598; 140:S6037-S6038,D604). On 16 May 1988, Senator Stevens from Alaska proposed amendment 2079 to S. 2355.

On page 93, strike out line 15 and all that follows through page 94, line 23, and insert in lieu thereof the following:

SEC. 802. GUIDANCE ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall prescribe guidelines that provide that a fixed-price contract should be awarded in the case of a development program conducted by the Department of Defense only when--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The Secretary of a military department and the head of a defense agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines and states in writing that the award of such contract is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the guidelines prescribed under such paragraph.

(B) The Under Secretary of Defense for Acquisition may delegate his authority under subparagraph (A) only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) **DEFINITIONS.**--In this section:

(1) The term "Defense Agency" has the same meaning as is provided in section 101(44) of title 10, United States Code.

(2) The term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) **EXPIRATION.**--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act. (139:S5879,S5965)

An examination of the remarks and debates given during the consideration S. 2355 reveals only one reference to fixed-price

contracts (134:S5270-S5287, S5288-S5301, S5309; 135:S5334-S5336, S5338-S5347, S5349-S5394; 136:S5423-S5449, S5450-S5468; 137:S5501-S5549, S5552-S5553, S5554-S5590; 138:S5684-S5794; 139:S5879-S5944, S5946-S5957; 140:S5980-S5997, S6003-S6006). This took place when Senator Stevens explained his amendment to the Senate.

Mr. STEVENS. Mr. President, the bill presented by the Armed Services Committee contains a new provision, section 802. It concerns the use of fixed price contracts in research and development programs. This is an issue we had faced in the Department of Defense appropriations bill for this current year. It was originally proposed by the House Appropriations Committee.

The present provision in this bill before the Senate, introduced by my good friend, the distinguished Senator from New Mexico, Senator Bingaman, places a limit on the use of firm fixed-price contracts in full-scale engineering development programs. My concern is not so much with the issue of the use of this contracting mechanism. I am worried by the precedent of the Congress restricting specific contracting practices of the Department of Defense.

I agree with the Senator from New Mexico that most research and development programs are too immature and not sufficiently defined to permit a rigid contracting structure. I agree that we must be wary in attempts to save money in the R&D phase by forcing contract terms. We probably could save a dollar in R&D costs, however, only to spend \$5 in procurement change orders if we are not careful.

Last year we faced an even more stringent proposal from the House Appropriations Committee. I opposed that initiative, also. Ultimately, in conference, we settled on report language that is contained in the report that accompanied the continued [sic] resolution.

I believe the proposal in the bill that is before the Senate now takes a more reasoned approach to the issue. My amendment limits the force of that provision for two years, through September 30, 1990. This limitation will provide both the Department of Defense and Congress an opportunity to study the issue and evaluate the use of fixed-price contracts in R&D programs.

We should be careful not to tie the hands of the program managers and contract officials at the Pentagon with too many legislative restrictions as we continue to tighten defense budgets and demand even more bang for the buck. We must not forestall contracting and management options that can prevent gold plating of some of the weapon systems.

I do express my appreciation, Mr. President, to the Senator from New Mexico for his consideration of my concerns, and the managers on both sides of the aisle who are managing this bill on the floor for their assistance and cooperation and that of their staffs in reaching an accommodation on this

amendment. As a member of the Defense Appropriations Subcommittee, I look forward to working with them in monitoring this issue now.

This compromise, I think, will avoid more restrictive legislation in the appropriations process later this year. This is a provision that I think both the Authorizing Committee and the Appropriations Committee can live with for at least a 2-year period to study the impact of such a restriction.

I ask my good friend from Georgia and my friend from Virginia if this amendment is acceptable.

Mr. WARNER. Mr. President, we have had an opportunity to examine the amendment of the Senator from Alaska. It is acceptable to this side.

Mr. NUNN. Mr. President, it is my understanding the Senator's major change here is to convert a permanent provision on a fixed-price contracting provision into a 2-year provision to determine whether it is working and give us a chance to assess it without making it permanent. Is that correct?

Mr. STEVENS. That is correct. That is the major change. It makes a fixed time period during which we can analyze the impact of this.

Mr. NUNN. I think this is a good amendment. This is a complicated area. While we want fixed-price contracting anytime we can get it where it makes sense, there were some instances in the last several years that the Department of Defense has insisted on fixed-price contracting when the elements of risk and when the research was at a very primitive stage and made it impossible to have a sensible fixed-price contract.

We are trying to strike a proper balance under the rules of fixed-price contracting in that area, the R&D area, as opposed to the procurement area. I believe the 2-year limitation will give us a chance to further assess that. So I would urge our colleagues to support the amendment.

Mr. STEVENS. Mr. President, I thank the Senators from Virginia and Georgia for their comments. I might say that it is my goal to avoid this issue in the appropriations conference which, by its very nature, is going to take place much later in the session. If the authorizing committee from the Senate can obtain approval of the authorizing committee from the House on this measure, I think it will eliminate a substantial controversy between the House and Senate in the appropriations conference.

Mr. President, I ask that the amendment be adopted.

The ACTING PRESIDENT pro tempore. If there is no further debate, the question is on agreeing to the amendment of the Senator from Alaska [Mr. Stevens]. (139:S5879-S5880)

The Senate agreed to the amendment as proposed by Senator Stevens (139:S5880).

The Senate continued its deliberations on S. 2355 until 17 May 1988 and still had not voted on passage of the bill (140:D604). On 19 May 1988, the Senate was notified that on 11 May 1988 the House had passed H.R. 4264, the House companion bill for FY 1989 DoD authorizations, and was requesting the concurrence of the Senate (136:H3167, D571; 141:S6237). H.R. 4264 was referred to the SASC (141:S6237). The Senate resumed consideration of S. 2355 on 27 May 1988 (142:S6950). After the last amendment for S. 2355 had been agreed to and final remarks made, the Senate concluded its work by proceeding to consider H.R. 4264 (142:S6951-S6953).

H.R. 4264. The Senate agreed to an amendment which would strike out all after the enacting clause of H.R. 4264 and substitute the text of S. 2355 (142:S6954). The Senate then passed H.R. 4264 as amended (142:S6954). The amended text was published in the Congressional Record and also as a separate print (142:S6954-S6995; 202). An examination of the text of section 802 in the print of H.R. 4264 as amended by the Senate reveals that it was same text of section 802 in amendment 2079 that the Senate had passed on 16 May 1988.

SEC. 802. GUIDANCE ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall prescribe guidelines that provide that a fixed-price contract should be awarded in the case of a development program conducted by the Department of Defense only when--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The Secretary of a military department and the head of a defense agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines and states in writing that the award of such contract is

consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the guidelines prescribed under such paragraph.

(B) The Under Secretary of Defense for Acquisition may delegate his authority under subparagraph (A) only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) DEFINITIONS.--In this section:

(1) The term "Defense Agency" has the same meaning as is provided in section 101(44) of title 10, United States Code.

(2) The term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act. (202:102-104)

The Senate insisted on its amendment to H.R. 4264, requested a conference with the House, and appointed conferees (142:S6995,D680).

On 2 June 1988, the House was notified of the Senate's passage of H.R. 4264 (143:H3848). On June 10 1988, the House disagreed with the Senate's amendment and concurred with the requested conference (144:H4138,D739-D740). The Speaker appointed conferees (144:H4149-H4150,D739). From 10 June 1988 until 7 July 1988, the conferees met to resolve the differences between the House and Senate bills (144:D741; 149:S9620).

On 7 July 1988, the Chairman of the House Armed Services Committee (HASC) submitted the conference report and joint statement of the managers (148:H5047). The texts of the conference report and the joint statement were published in the Congressional Record and as a separate House report (148:H5047-H5317; 188). The conference report's text for the section on fixed-price contracts in House Report 100-753 is as follows:

SEC. 807. REGULATIONS ON USE OF FIXED-PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall revise the Department of Defense regulations that provide for the use of fixed-price development contracts in a development program. The regulations shall provide that a fixed-price contract may be awarded in such a program only if--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The regulations also shall provide that a firm fixed-price contract in excess of \$10,000,000 may not be awarded for the development of a major system.

(B) A waiver of the requirement prescribed in regulations under subparagraph (A) may be granted by the Secretary of Defense, acting through the Under Secretary of Defense for Acquisition, but only if the Secretary determines and states in writing that the award is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the regulations prescribed under such paragraph. The Secretary may delegate the authority in the preceding sentence only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) DEFINITIONS.--In this section:

(1) The term "Defense Agency" has the same meaning as is provided in section 101(44) of title 10, United States Code.

(2) The term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act. (188:97).

The joint statement of the managers explained the revised text as follows:

Regulations on use of fixed-price development contracts
(sec. 807)

The Senate amendment contained a provision (sec. 802) that would require the Secretary of Defense to prescribe guidelines limiting the use of fixed price contracts for development programs. The Senate provision also would preclude use of firm-fixed price development contracts in excess of \$10 million unless approved by the Under Secretary of Defense for Acquisition.

The House bill contained no similar provision.
The House recedes with a clarifying amendment.

The conferees note that current Department of Defense rules discourage the use of fixed price development contracts, but do not provide sufficient guidance for assessment of the relationship between pricing and program risk, and for the allocation of risk between the United States and the contractor. The conferees expect the revised regulations to provide a greater level of detail with respect to these matters.

The conferees emphasize that the expiration of the \$10 million statutory limit on firm-fixed price contracts after two years does not signal any intent or expectation that the regulatory limitations will be changed substantially at that time; rather, it reflects a belief that a two-year statutory period is sufficient to focus the Department's attention on this problem. The Congress can monitor the Department's performance after that period through the oversight process without the necessity for mandatory involvement by the Under Secretary in specific cases, except to the extent that the Under Secretary believes at that time that such continuing involvement is necessary. (188:425).

The House and Senate agreed to the conference report on 14 July 1988 without amendment (149:S9619-S9659, S9661-S9676, H5726-H5729, D930, D934). The presiding officers of the House and Senate signed the enrolled bill and it was presented to the President for his approval (150:S9807; 151:H5884). On 3 August 1988, the President returned the enrolled bill with a veto message (152:H6248, D1015). The House referred the message and bill to the HASC (152:H6261). The text of the message appeared in the Congressional Record and the texts of both the message and vetoed bill were published as a House document (152:H6248-H6249, D1015; 190).

S. 2749. On 11 August 1988, eight days after the President's veto, the SASC Chairman introduced S. 2749 and requested the Senate to pass it without any intervening action, motions, or debate and, further, to lay on the table any motion to reconsider (159:S11634, S11755). The Senate agreed to the Chairman's request and passed S. 2749 in, as the SASC Chairman remarked to those Senators present, what was probably the shortest time the Senate had ever taken

to pass an authorization bill (159:S11755-S11756). The text of section 802 of S. 2749 was identical with the text of section 802 of H.R. 4264, as amended on 27 May 1988 (159:S11756).

SEC. 802. GUIDANCE ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall prescribe guidelines that provide that a fixed-price contract should be awarded in the case of a development program conducted by the Department of Defense only when--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The Secretary of a military department and the head of a defense agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines and states in writing that the award of such contract is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the guidelines prescribed under such paragraph.

(B) The Under Secretary of Defense for Acquisition may delegate his authority under subparagraph (A) only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) DEFINITIONS.--In this section:

(1) The term "Defense Agency" has the same meaning as is provided in section 101(44) of title 10, United States Code.

(2) The term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act. (208:102-104)

The Senate sent S. 2749 to the House; however, the House did not act on it until early October, which will be further discussed in the next chapter of this thesis.

H.R. 4481. H.R. 4481 became a part of the history for FY 1989 DoD authorizations very late in its journey through the legislative process. Throughout most of its existence, H.R. 4481

identified a legislative proposal which would require the Secretary of Defense to realign or close all recommended domestic and overseas military installations (201:1; 209:1-2). The list of recommended military installations would come from the Commission on Base Realignment and Closure, established on 3 May 1988 by the Secretary of Defense (201:7). Only after the Senate voted to discharge the SASC from further consideration of H.R. 4481 and to proceed to its immediate consideration, did H.R. 4481 become the vehicle for the Senate's FY 1989 DoD authorization proposal (162:S12669). This happened on 15 September 1988.

As soon as debate began on H.R. 4481, amendment 3042 was offered (162:S12669). This amendment would strike out all the text of the bill after the enacting clause and substitute the text of S. 2749 as passed by the Senate on 11 August 1988 (162:S12591). The Senate agreed to the amendment and then passed H.R. 4481 (162:S12670). The amendment was printed in the Congressional Record and had the section on fixed-price development contracts (162:S12591-S12632).

SEC. 802. GUIDANCE ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall prescribe guidelines that provide that a fixed-price contract should be awarded in the case of a development program conducted by the Department of Defense only when--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The Secretary of a military department and the head of a defense agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines and states in writing that the award of such contract is consistent with the criteria specified in clauses (A) and (B)

of paragraph (1) and the guidelines prescribed under such paragraph.

(B) The Under Secretary of Defense for Acquisition may delegate his authority under subparagraph (A) only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) DEFINITIONS.--In this section:

(1) The term "Defense Agency" has the same meaning as is provided in section 101(44) of title 10, United States Code.

(2) The term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act. (162:S12603)

The Senate then insisted on its amendment, requested a conference, and appointed conferees (162:S12670).

On 16 September 1988, the House received a message that the Senate had passed an amended version of H.R. 4481 (163:H7681). The House agreed to a motion to disagree with the Senate amendment and to agree to the requested conference (170:H8476,D1232). Three members were appointed as conferees (170:H8476,D1232). On 28 September 1988, the conference report and joint statement were submitted to the House, reprinted in the Congressional Record, and published as a separate House report (171:H8578-H8844; 189).

The text of the conference report in House Report 100-989 contained a section on the use of fixed-price development contracts.

SEC. 807. REGULATIONS ON USE OF FIXED-PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall revise the Department of Defense regulations that provide for the use of fixed-price development contracts in a development program. The regulations shall provide that a fixed-price contract may be awarded in such a program only if--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The regulations also shall provide that if a contract for development of a major system is to be awarded in an amount greater than \$10,000,000, the contract may not be a firm fixed-price contract.

(B) A waiver of the requirement prescribed in regulations under subparagraph (A) may be granted by the Secretary of Defense, acting through the Under Secretary of Defense for Acquisition, but only if the Secretary determines and states in writing that the award is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the regulations prescribed under such paragraph. The Secretary may delegate the authority in the preceding sentence only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) DEFINITIONS.--In this section, the term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act. (189:97-98)

The joint statement of the managers explained the revised text as follows:

Regulations on use of fixed-price development contracts
(sec. 807)

The Senate amendment contained a provision (sec. 802) that would require the Secretary of Defense to prescribe guidelines limiting the use of fixed price contracts for development programs. The Senate provision also would preclude use of firm-fixed price development contracts in excess of \$10 million unless approved by the Under Secretary of Defense for Acquisition.

The House bill contained no similar provision.

The House recedes with a clarifying amendment.

The conferees note that current Department of Defense rules discourage the use of fixed price development contracts, but do not provide sufficient guidance for assessment of the relationship between pricing and program risk, and for the allocation of risk between the United States and the contractor. The conferees expect the revised regulations to provide a greater level of detail with respect to these matters.

The conferees emphasize that the expiration of the \$10 million statutory limit on firm-fixed price contracts after two years does not signal any intent or expectation that the regulatory limitations will be changed substantially at that time; rather, it reflects a belief that a two-year statutory period is sufficient to focus the Department's

attention on this problem. The Congress can monitor the Department's performance after that period through the oversight process without the necessity for mandatory involvement by the Under Secretary in specific cases, except to the extent that the Under Secretary believes at that time that such continuing involvement is necessary. (189:426-427).

After a brief debate, during which no one discussed section 807, the House agreed to the conference report (171:H8844-H8846,D1233). Later that day, the Senate began its consideration of the conference report and joint statement (170:S13462). An examination of the text of the debate in the Senate reveals that section 807 was not discussed, and the Senate agreed to the conference report (170:S13462-S13472,D1229). On 29 September 1988, the presiding officers of the House and Senate signed the enrolled bill for H.R. 4481 (172:H9062,S13670). The enrolled bill was then presented to the President, who signed it into law as P.L. 100-456 (173:H9246; 177:H9633). Section 807, now at last a statutory requirement, reads as follows:

SEC. 807. REGULATIONS ON USE OF FIXED-PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall revise the Department of Defense regulations that provide for the use of fixed-price development contracts in a development program. The regulations shall provide that a fixed-price contract may be awarded in such a program only if--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The regulations also shall provide that if a contract for development of a major system is to be awarded in an amount greater than \$10,000,000, the contract may not be a firm fixed-price contract.

(B) A waiver of the requirement prescribed in regulations under subparagraph (A) may be granted by the Secretary of Defense, acting through the Under Secretary of Defense for Acquisition, but only if the Secretary determines and states in writing that the award is consistent with the criteria specified in clauses (A) and (B) of paragraph (1)

and the regulations prescribed under such paragraph. The Secretary may delegate the authority in the preceding sentence only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) DEFINITIONS.--In this section, the term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act. (120:102 STAT. 2011)

Analysis

The analysis begins with the textual evolution of section 807.

The analysis then examines the explanatory sources of legislative history that are available for this provision.

Textual Evolution of Section 807. The legislative history makes clear that the provision on fixed-price type development contracts went through many changes before becoming a part of public law. Not counting the text of the statute as it appears in the slip law itself, the legislative history section of this chapter provided eight sequential versions of the text of what would ultimately become section 807 of the FY 1989 DoD Authorization Act. Of these eight texts, five differ from each other. These five texts document the development of the section on fixed-price contracts which appeared in the first conference report. These texts are the initial IAG draft, section 3 of S. 2254, section 802 of S. 2355, section 802 of H.R. 4264 as amended on 27 May 1988, and section 807 of the conference report for H.R. 4264. The other three texts resulted in the second conference report. Of these three texts, section 802 of S. 2749 and section 802 of H.R. 4481 as amended by the Senate are identical to section 802 of H.R. 4264 as amended on 27 May 1988. Section 807 of the conference report for H.R. 4481 is identical to section 807 of the conference

report for H.R. 4264. This subsection will examine the revisions to each of the five different texts as well as comment on how the three identical texts contributed to the development of the final outcome. The examination will treat each text in the order of its appearance in the legislative process.

Revisions to the IAG Draft Which Yielded Section 3 of S. 2254. A comparison of these two texts reveals one change. This change would reduce the number of contracts affected by the statute. Figure 3 below shows the difference between the IAG draft and section 3 of S. 2254. The deletion is struck through and the addition is printed in italic.

SEC. 3. LIMITATIONS ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

Section 2306 of title 10, United States Code, is amended by adding at the end the following:

(1) (i) The head of agency may not award a firm fixed-price contract *in excess of \$10,000,000* for the development of a major system or a subsystem of a major system *in excess of \$10,000,000* unless the Under Secretary of Defense for Acquisition determines, in writing, that--

(A) program risk has been reduced to the extent that realistic pricing can occur; and

(B) the use of a firm fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2) The Under Secretary of Defense for Acquisition may not delegate his authority under paragraph (1) to any person who holds a position outside the Office of the Secretary of Defense or a position below the level of Assistant Secretary of Defense.

(3) The Under Secretary shall transmit to the Committees on Armed Services and Appropriations of the Senate and House of Representatives once each quarter a written report containing a list of all contracts described in paragraph (1) that have been awarded during such quarter.".

Figure 3. Revisions to Industry Advisory Group Draft Which Yielded Section 3 of S. 2254

A reading of the IAG draft suggests that the provision would affect all firm fixed-price development contracts for a major system and all firm fixed-price development contracts for its individual subsystems, if the individual subsystem was valued at greater than \$10,000,000.

Change ① shifted the emphasis away from the major system or the value of the subsystems of a major system. As a result of the change, the statute would apply to fewer contracts. Instead of applying to all firm fixed-price development contracts, as described above, the statute now applies only to those firm fixed-price development contracts whose value exceeds \$10,000,000. This change provides the DoD with more flexibility by reducing the number of contracts subject to review by senior DoD management.

Revisions to Section 3 of S. 2254 Which Yielded Section 802 of S. 2355. The SASC incorporated three major changes and a stylistic change to section 3 of S. 2254. The revised title of the section reflects the thrust of the first two major changes. DoD was required to write guidelines on the use of fixed-price type development contracts which would institutionalize the process for implementing the desired procurement policy. The policy would then endure such that Congress need not continue its oversight of DoD's actions. The third major change would further restrict the impact of the statute's provisions by exempting two executive branch organizations from compliance with the statutory requirements. This further restriction would continue a trend toward greater flexibility from S. 2254.

Figure 4 on the next page shows the differences between section 3 of S. 2254 and section 802 of S. 2355. The deletions are struck through and the additions are printed in italic.

SEC 3 802. LIMITATIONS GUIDANCE ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--Section 2306 of title 10, United States Code, is amended by adding at the end the following:

"(i)(1) The head of an agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines, in writing, that

(1) "(i)(1) The Secretary of Defense shall prescribe guidelines that provide that a fixed-price contract should be awarded in the case of a development contract only when--

"(A) program risk has been reduced to the extent that realistic pricing can occur; and

"(B) the use of a firm fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

"(2) The Under Secretary of Defense for Acquisition may not delegate his authority under paragraph (1) to any person who holds a position outside the Office of the Secretary of Defense or a position below the level of Assistant Secretary of Defense.

"(2) The head of an agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines and states in writing that the award of such contract is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the guidelines prescribed under such paragraph.

(2) "(3) The Under Secretary shall transmit to the Committees on Armed Services and Appropriations of the Senate and House of Representatives once each quarter a written report containing a list of all contracts described in paragraph (1) that have been awarded during such quarter.".

"(3) The Under Secretary of Defense for Acquisition may delegate his authority under paragraph (2) only to a person who holds a position in the Office of the Secretary of

(4) Defense at or above the level of Assistant Secretary of Defense.

(3) "(4) This subsection does not apply to the Coast Guard or the National Aeronautics and Space Administration.".

(1) (b) PERIOD FOR ISSUANCE OF GUIDELINES.--The Secretary of Defense shall issue the guidelines required by subsection (i) of section 2306 of title 10, United States Code (as added by subsection (a)), not later than 120 days after the enactment of this Act.

Figure 4. Revisions to Section 3 of S. 2254 Which Yielded Section 802 of S. 2355

The first major change ① would require DoD to issue guidelines, within 120 days of enactment, on the use of fixed-price development contracts. These guidelines would then begin the process of modifying behavior patterns which the SASC believed were yielding unfavorable outcomes. As the modification spread throughout DoD, procurement personnel would adapt themselves to a different way of doing business. The acquisition community as a whole would gradually move into the direction toward more acceptable practices. By these requirements, the SASC added positive reform to the existing proposed legislation. The solution of the proposed legislation, S. 2254, in effect, would have required headquarters staffs to review the outcomes of older, continuing behavior patterns. The solution of positive reform in S. 2355, of actively modifying behavior rather than only reviewing its results, added a valuable dimension toward creating an enduring change.

The second major change ② would support the goal of the first major change. This second change removed the requirement that DoD give congressional committees quarterly reports on the number of firm fixed-price development contract awards. A requirement for a periodic, written report does not necessarily cause change. These reports could even become a source of distracting influences on a worthwhile endeavor. The removal of the reporting requirement complemented the first major change in the pursuit of lasting reform. As reform spreads, active oversight through written reporting should diminish.

The third major change ③ was significant because it restricted the statute's impact. It did so by clarifying the intended audience of the legislation. S. 2254 had already limited the frequency of oversight by a change whose effect would reduce the number of contracts

subject to review and approval. S. 2355 further limited the span of oversight by clarifying the intended audience of the statute. The change exempted two executive branch organizations, the Coast Guard and the National Aeronautics and Space Administration, from the statute's requirements. This change was significant, not only because it restricted the statute's audience, but more importantly because it was the second instance of restriction of oversight in two consecutively published texts of the same statute.

The stylistic change ④ concerned the delegation of USD(A)'s authority for issuing the written determinations. The SASC's revised requirement identifies the people to whom USD(A) could delegate the authority, rather than the people to whom he could not. This shift in emphasis eliminates the need to identify two separate groups of people, i.e. one group of people outside the Office of Secretary of Defense and another group within the Office of Secretary of Defense below the level of Assistant Secretary. Now, the emphasis is on one group of people--those in the Office of Secretary of Defense at or above the level of Assistant Secretary. This not only simplifies the structure of the last half of the sentence, but also gives a more unified concept.

Revisions to Section 802 of S. 2355 Which Yielded Section 802 of H.R. 4264 As Amended. The Senate incorporated one major change and several clarifying and stylistic changes into section 802 as part of preparing the final legislative package which later went to the conference committee. The major change to the proposal affected in two ways the time limits during which section 802's requirements would remain in effect. Figure 5 on the next page shows how section 802 was revised. The deletions are struck through and the additions are printed in italic.

SEC. 802. GUIDANCE ON USE OF FIXED PRICE DEVELOPMENT CONTRACTS

(1) (a) IN GENERAL.--Section 2306 of title 10, United States Code, is amended by adding at the end the following: "(i) (1) Not later than 120 days after the enactment of this act, the Secretary of Defense shall prescribe guidelines that provide that a fixed-price contract should be awarded in the case of a development program conducted by the Department of Defense only when--

"(A) the level of program risk permits realistic pricing; and

"(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2) (A) The Secretary of a military department and the head of an agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines and states in writing that the award of such contract is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the guidelines prescribed under such paragraph.

(B) The Under Secretary of Defense for Acquisition may delegate his authority under paragraph (2) (A) only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(3) (4) This subsection does not apply to the Coast Guard or the National Aeronautics and Space Administration.

(b) PERIOD FOR ISSUE OF GUIDELINES.--The Secretary of Defense shall issue the guidelines required by subsection (i) of section 2306 of title 10, United States Code (as added by subsection (a)), not later than 120 days after the enactment of this Act.

(2) (b) DEFINITIONS.--In this section:

(1) The term "Defense Agency" has the same meaning as is provided in section 101(44) of title 10, United States Code.

(2) The term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(c) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act.

Figure 5. Revisions to Section 802 of S. 2355 Which Yielded Section 802 of H.R. 4264 as Amended

The first effect of major change ① was to revise the section on fixed-price contracts from a permanent statute in Title 10, United States Code to a statute which must be enacted on a recurring basis. This action greatly increased both DoD's and Congress' flexibility. As a part of permanent law, the statutory requirements would have remained in force until revised or repealed. Thus, conceivably, if Congress took no positive action to change the law, the statute would have affected DoD's acquisition community indefinitely. Now, as a part of legislation for DoD authorizations which must be enacted on a recurring basis, the statute expires after a fixed period of time. This time is the period during which the particular DoD Authorization Act itself, of which the section would be a part, would remain in force. After the time limit passed, Congress could forgo enacting another requirement if the statute had either the desired, planned effect or undesirable, unforeseen consequences. If further correction was needed, Congress could enact another, revised statutory requirement which would be compatible with and would build on the progress achieved by the initial statutory requirement. This flexibility would keep open the options for change.

The second, corollary effect of major change ① limited the time during which USD(A) must approve the use of fixed-price development contracts over \$10,000,000. This change further limited the oversight of firm fixed-price contracts by senior DoD management. It established the trend begun in S. 2254 and continued in S. 2355. With the oversight reduced by limiting the number of contracts reviewed and the executive agencies affected, this further increment in the trend limited the time during which the oversight was required. Like the effect of the major change discussed in the previous paragraph,

this change also allowed for increased flexibility to adapt to changing conditions. After the two-year time limit had passed, USD(A) could adjust the review policy as required to be compatible with the circumstances existing at that time. As stated above, keeping open the options for change was a positive benefit for everyone concerned.

The Senate also agreed to add two clarifying changes and one stylistic change to the version of section 802 reported by the SASC. The first change ② gave definitions from permanent statutes for the terms "defense agency" and "major system." The second change ③ made clear that not only the defense agencies, e.g. the Defense Nuclear Agency, but also the military departments had to comply with the requirements for fixed-price development contracts. The stylistic change ④ was to identify the intended audience for the statute. The Senate did this by defining those to whom it did apply, the Department of Defense, rather than those to whom it did not apply, for example, the Coast Guard and the National Aeronautics and Space Administration. The net effect of all the changes was a more flexible requirement expressed with greater clarity and compactness.

Revisions to Section 802 of H.R. 4264 As Amended Which Yielded Section 807 of the Conference Report for H.R. 4264. The conference committee added three major changes and two minor changes to H.R. 4264 as amended. Two of the major changes continued trends from prior revisions. The effect of the other major change was to raise the level of the statute's oversight requirements. The first minor change deleted language from the subsection on definitions and resulted from one of the major changes. The second minor change implied less permissiveness in using fixed-price development contracts.

Figure 6 on the next page shows the differences between section 802 of H.R. 4264 as amended by the Senate and section 807 of the conference report for H.R. 4264. The deletions are struck through and the additions are printed in italic.

The first major change ① continued the trend started in S. 2355 as reported by the SASC. The SASC had added language which required DoD to provide guidelines for the use of fixed-price development contracts. These guidelines would be the means by which the change in policy would be implemented throughout the acquisition community. The conferees further developed this approach by requiring the means of implementation to become more compulsory and permanent. The conferees intended to achieve this development by the use of regulations instead of guidelines.

The second major change ② confirmed the already well-developed trend of limiting the scope of oversight. The conference committee exempted subsystems of major systems from compliance with the statutory requirements. Now, only firm fixed-price contracts over \$10,000,000 for major systems were subject to review and approval. This further narrowing of the scope would reduce the involvement of senior DoD management in the selection of contract type.

The third major change ③ offset to some extent the reduction of oversight from the second major change. After the Senate had repeatedly narrowed the field of procurements subject to approval, the conference committee chose to raise the level of senior OSD management oversight from USD(A) to the Secretary of Defense. The Secretary retained the flexibility, however, of delegating this approval to an Assistant Secretary of Defense. This flexibility has been part of legislation on this subject from both houses of Congress since the

① SEC. 802 807. GUIDELINES REGULATIONS ON USE OF FIXED-PRICE DEVELOPMENT CONTRACTS

(a) IN GENERAL.--(1) Not later than 120 days after the date of enactment of this Act, the Secretary of Defense shall

① prescribe guidelines revise the Department of Defense regulations that provide that a fixed price contract

⑤ should be awarded in the case of a development program conducted by the Department of Defense only when for the use of fixed-price development contracts in a development program. The regulations shall provide that a fixed-price

⑤ contract may be awarded in such a program only if--

(A) the level of program risk permits realistic pricing; and

(B) the use of a fixed-price contract permits an equitable and sensible allocation of program risk between the United States and the contractor.

(2)(A) The Secretary of a military department and the head of a defense agency may not award a firm fixed-price contract in excess of \$10,000,000 for the development of a

② major system or a subsystem of a major system unless the Under Secretary of Defense for Acquisition determines and states in writing that the award of such contract is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the guidelines prescribed under such paragraph. The regulations also shall provide that a firm fixed-price contract in excess of \$10,000,000 may not be

② awarded for the development of a major system.

(B) A waiver of the requirement prescribed in regulations under subparagraph (A) may be granted by the

③ Secretary of Defense, acting through the Under Secretary of Defense for Acquisition, but only if the Secretary determines and states in writing that the award is consistent with the criteria specified in clauses (A) and (B) of paragraph (1) and the regulations prescribed under such paragraph. The Under Secretary of Defense for Acquisition may delegate the authority under subparagraph (A). The Secretary may delegate the authority in the preceding sentence only to a person who holds a position in the Office of the Secretary of Defense at or above the level of Assistant Secretary of Defense.

(b) DEFINITIONS.--In this section: section, the term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(1) The term "Defense Agency" has the same meaning as is provided in section 101(44) of title 10, United States Code.

(2) The term "major system" has the same meaning as is provided in section 2302(5) of title 10, United States Code.

(C) EXPIRATION.--Paragraph (2) of subsection (a) shall cease to be effective two years after the date of the enactment of this Act.

Figure 6. Revisions to Section 802 of H.R. 4264
Which Yielded Section 807 of H.R. 4264

beginning of this history. It reflects Congress' desire to retain approval at a level capable of achieving a uniform implementation across all the military departments and defense agencies, but not at the expense of requiring the personal attention of the highest levels of DoD senior management in all cases.

The first minor change ④ came about from the way that the conference committee re-wrote the sub-section on who could approve firm fixed-price development contracts over \$10,000,000. The prior version had described this approval in terms of the authorities of secretaries of military departments and heads of defense agencies in awarding contracts. The conference version deleted these terms and focused instead on who in OSD could approve these contracts. Since the term "defense agencies" was no longer part of the section's language, the related definition was not needed and the conference committee deleted it.

The other minor change ⑤ came about from the revision of the first subsection. In the prior version, the language had read that the DoD "should" award fixed-price contracts only under certain conditions. The conference committee revised the language to read that the DoD "may" award fixed-price contracts only under certain conditions. The change from "should" to "may" indicates a shift to a less permissive attitude toward the use of these contract types.

H.R. 4264 Conference Report to H.R. 4481 Conference Report.

S. 2749. As stated earlier, the President vetoed H.R. 4264. The veto message and enrolled bill were returned to the House of Representatives, where the bill was referred to the HASC. The Senate took the initiative to produce a second FY 1989 DoD Authorization Act eight days later. This took place when the Senate

passed and sent S. 2749 to the House. Comparing the text of section 802 of this bill with section 802 of H.R. 4264 as amended reveals that they are identical. With less than two months before the start of the new fiscal year, the Senate may have believed it did not have time to create new legislative proposals. The text of section 802 was still a suitable basis on which to start negotiations which could swiftly conclude in a second conference report. The Senate had agreed to section 802 on 27 May 1988, and the House conferees would be familiar with the text they would already have seen.

H.R. 4481. By mid-September, the House had not acted on S. 2749 and, on 15 September 1988, the Senate voted to open H.R. 4481 to debate and amendment. In this action, the Senate tried again to restart the authorization process. The Senate voted to delete the existing text of the bill and substitute the text of S. 2749 which it had passed the previous month. As with S. 2749, H.R. 4481's text of section 802 was identical with the text of section 802 in H.R. 4264 as amended on 27 May 1988. The reasons for using the same text for section 802 were probably the same as those for using the same text in S. 2749, except that now the time sensitivity was even more acute.

Section 807 of the Conference Report for H.R. 4481. An examination of the texts of section 807 in the conference reports for H.R. 4264 and H.R. 4481 reveals that they are identical. The conferees for H.R. 4481 were still satisfied with what had been agreed to in the earlier conference report. They probably had no reason to re-open what had already been negotiated.

Committee Reports. The committee report which accompanied S. 2355 and the joint statements which accompanied the conference

reports brought out insights unavailable from other congressional reports issued previously. The narrative began by describing the circumstances which brought about the enactment of the statute. The SASC report suggests the quality of high innovativeness as the source of risk in research and development efforts. From this source comes the inability to estimate costs with any degree of certainty. This inability puts the contractor at great risk in contracts with a firm upper limit on reimbursable costs. Unfavorable outcomes of this risk are contract renegotiation and the liability for unanticipated costs which can lead to financial loss. The report recommended that DoD avoid these circumstances by use of contract types whose terms and conditions distribute risk and manage varying cost outcomes in a way that avoids these unfavorable consequences. The contract pricing structure should be able to provide for a variety of cost outcomes that could result from the unfolding of a generally-defined, dynamic task.

The conferees' remedy for these circumstances was legislation whose approach required DoD to revise existing regulations on the use of fixed-price type contracts for development programs. These new regulations would educate the acquisition community, guide the actions of its people, and complement the statutory requirement which required senior DoD executive approval of firm fixed-price development contracts over \$10,000,000. Both the committee report and the joint statements discussed the need for DoD to more fully describe the conditions under which fixed-price type development contracts are appropriate. Both joint explanatory statements defined the desired description as one which would guide the acquisition community in assessing the relationship between pricing and program risk, and allocating the risk between the government and the contractor. The

committee reports suggested that realistic pricing and an equitable and sensible allocation of risk, the criteria which form the basis for using fixed-price type development contracts, occur when costs and foreseeable program risks can be reasonably anticipated. The conferees hoped that the remedy would have the effect of restricting the use of fixed-price type contracts to acquisitions which satisfy these two criteria. Contractors would not carry financial liability in a rigid pricing structure when the risks were not clearly defined and the possible financial outcomes could not be estimated with a high degree of certainty. This effect would achieve the purpose of using a contract type that is compatible with the circumstances of each individual development program.

Hearings. The hearings for FY 1989 DoD authorizations gave insights into the beliefs of representatives from DoD and industry on a number of issues, two of which were discussed in the committee report. This subsection will examine DoD's motive for using fixed-price development contracts and opinions on the need for legislative remedies. The subsection will then examine two issues addressed in the committee report: the proper and improper uses of fixed-price type development contracts and the results of improper use of fixed-price type development contracts.

DoD's Motives for the Use of Fixed-Price Type Development Contracts. Perceptions of industry and DoD on the use of fixed-price development contracts focus on the same source of motivation. This source is DoD's desire to limit the cost of a weapon system development effort. The DoD Deputy Inspector General, Mr Derek Vander Schaaf, addressed this issue in his response to an IAG issue paper.

The present policies [for procurement of weapon system development] are the product of years and years of open-ended commitments to development contracts which often resulted in substantial cost growth and major changes to the original scope of work. (211:408)

Mr Vander Schaaf illustrated the application of this policy with an example in his summary statement to the SASC's Subcommittee on Defense Industry and Technology.

You have to look at what the Department wants to have developed before the type of contract is selected. If we want to develop a new truck, it is a relatively low risk.

To limit the amount of resources we want to devote to development of a new truck, it is appropriate to use a fixed-price incentive contract. For example, the Department could set the development cost at \$10 million as a target price, set a share line and put a ceiling price maybe at \$12 or \$13 million and set a share line according to the risk. It is appropriate in that circumstance to use a fixed-price incentive contract. (211:352)

In a response to an IAG issue paper, USD(A) summarized industry's view of what the DoD is trying to do.

...the Navy has spearheaded the greater use of fixed-price type contracts for R&D effort; the Army and Air Force followed. Their purpose has been to limit the DoD's cost risk by shifting responsibility to the contractor.

Past experience has proven that DoD has not been successful when attempting to shift risk in this manner. It represents a short-sighted perspective. (211:309)

In a prepared statement given to the Subcommittee on Defense Industry and Technology, Mr John Rittenhouse, the IAG chairman, also alluded to the shift of responsibility for cost risk and the DoD's desire to limit the costs of its development programs.

Requiring a contractor to commit himself to a price for something that hasn't been invented is neither sound business practice for the contractor, nor is it the lower-cost development for the government it is perceived to be. (211:586)

Thus, while DoD sought to limit its cost liability by shifting risk to industry, industry believed this shift was unwise and would not provide the expected benefits.

Need for Legislation. Opinions were divided over the need for legislation on the use of fixed-price development contracts. The beliefs of a particular witness seemed to depend on whether the witness came from industry or DoD. The DoD witnesses said that legislative remedies were unnecessary. The industry witnesses who addressed the need for a statute argued, on the other hand, that legislative remedies were unavoidable.

Several DoD witnesses suggested that the problem was not so widespread as to warrant legislation. In a question-and-answer session before the Subcommittee, the Air Force Acquisition Executive, Mr Welch, discussed the use of fixed-price type development contracts.

I think that the Air Force has tended to look at fixed-price incentive contracts. I do not believe we have ever really had a difficulty in terms of trying to get over to the firm fixed-price arena.

So far, since that directive has been in place, we have only had three occasions to look at, essentially, an approval. And two of those are in the fixed-price incentive arena. Only one in the fixed-price arena. (211:339-340)

In a summary statement given to the Subcommittee, the DoD Deputy Inspector General, Mr Vander Schaaf, gave the same views as Mr Welch, except that Mr Vander Schaaf did so from a DoD-wide perspective.

Actually the Department uses very few truly fixed-price contracts in research and development. We do use fixed price incentive contracts in R&D and those are appropriate on occasion. (211:352)

A witness from industry, who was the president of a small business, expressed opinions at variance with the views of witnesses from the DoD.

I am being asked--I am not being asked; I am doing this today in my business. I am agreeing to firm fixed-price contracts for research and development. We actually have them in house.

I do not care what somebody else says, that it is a rare occasion. I think you will find it very predominant at the small business level... (211:459)

The USD(A), Dr Costello, and DoD Deputy Inspector General believed that the current regulatory guidance was adequate to achieve the goals of statutory requirements. In a response to an IAG issue paper which appeared in the published hearings, Dr Costello wrote the following:

Such inflexible legislative prescriptions would be especially unfortunate in view of recent actions taken by the Department aimed at satisfying the defense industry's concerns in this area. These include issuance in September and December 1987 respectively, of a Directive and an Under Secretary of Defense for Acquisition policy letter reaffirming that a cost-type contract is the appropriate means for executing a risky weapon system development program, initiation of a review of the Secretary of the Navy Instruction 4210.6 concerning major system acquisition aimed at identifying necessary changes, and more careful scrutiny by the Office of the Secretary of Defense during milestone and program reviews of the Services' choice of contract type. Both industry and Congress should give these actions sufficient time to show results before considering enactment of inflexible legislative prohibitions. (211:315)

The DoD Deputy Inspector General also wrote about the adequacy of DoD's regulatory implementation in a response to an IAG issue paper which also appeared in the published hearings.

...DoD Directive 5000.1, dated 1 September 1987, now states that contract type "...shall be consistent with all program characteristics including risk. Fixed price contracts are normally not appropriate for research and development phases." The Under Secretary of Defense for Acquisition has recently reiterated the regulatory guidance. Therefore, we believe that reenactment of the Section 8118 language is unnecessary. (211:408)

In his summary statement given at the hearing, the DoD Deputy Inspector General reiterated these opinions in a dialogue with Senator Bingaman, the Subcommittee Chairman.

MR. VANDER SCHAAF. With regard to the limitation you proposed on fixed-price development contracts, your limitation is actually very much in agreement with DoD policy...I think the guidance is right, I think the testimony you heard earlier this afternoon would indicate that the Department understands the position of Congress and the industry with respect to allocating risk, and that you need not try to legislate that.

SENATOR BINGAMAN. So your suggestion is that the provision we have in under section 3 is not needed?

MR. VANDER SCHAAF. That is correct. I would say it is not needed. (211:352)

In his response to a question for the record, USD(A) summarized the preferred remedy.

...we believe that the statute's goal, namely, ensuring choice of the contract type appropriate to the circumstances of each individual development program, can best be accomplished by careful administrative oversight without legislation. (211:483)

An industry witness, who presented a prepared statement on behalf of the Aerospace Industries Association (AIA) of America, did not agree with this position. The witness was concerned that administrative remedies would be insufficient. He suggested that parts of the DoD acquisition community were unresponsive to its senior leadership.

This section of the legislation deals with the subject of fixed-price development contracts. As you know, the Undersecretary of Defense for Acquisition has recently issued two directives to the military departments restricting the use of such contracts. We applaud Dr. Costello's efforts in this regard. However, I am quite concerned that some activities may continue on a "business as usual" course of shifting undue risk to industry. We must reluctantly conclude the legislation is necessary in this area in order to clarify Congressional intent and to provide support for the Undersecretary's policy on fixed-price development contracts. (211:437)

In a prepared statement, another industry witness, Mr Jeffrey Joseph from the United States Chamber of Commerce, not only suggested the enactment of more restrictive legislation to solve the problem, but even thought the solution should include public comment on the proposed selection of contract type.

The Chamber believes that this highly desirable section should be strengthened. Specifically, the after-the-fact reporting of the use of fixed-price type development contracts, will not provide a sufficient deterrent to inappropriate practice. We suggest instead that the Under Secretary for Acquisition be required to seek public comment prior to granting any waivers. The Chamber suggests that the

provision codify current DOD policy that applies to all fixed-price type contracts in lieu of firm fixed-price contracts. (211:548)

Several DoD witnesses believed that statutory limitations would not give DoD personnel the flexibility they need to deal with each acquisition on a case-by-case basis. USD(A)'s response to one of the IAG's issue papers printed in the text of the published hearings explained this undesirable effect.

...the kind of permanent legislation proposed by the Industry Advisory Group is an overreaction that would unduly limit the Department's ability to choose the procurement approach appropriate to the circumstances of an individual program... (211:315)

The DoD Deputy Inspector General also wrote about the loss of flexibility. In a response to an IAG issue paper, Mr Vander Schaaf stated that legislation would have the undesirable effects of not only losing flexibility, but also lengthening the acquisition process.

The proposed legislation would further reduce the authority of the contracting officer to choose the appropriate type of contract for each acquisition and would lengthen the acquisition process by requiring higher levels of approval prior to contract award. (211:408-409)

In his prepared statement given to the Subcommittee, Mr Vander Schaaf further developed the reasoning for the flexibility needed by the program managers and contracting officers as they measure and allocate program risk.

The degree of contract risk is unique to each acquisition of material or services and must be addressed in individual acquisition plans prepared by the program manager. Program managers are responsible for assessing and managing cost, schedule and performance risks in each phase of a major weapon system acquisition. The decisions made by program managers concerning the trade-offs between cost, performance and schedule in the development phase of a new weapon system, or the upgrading of an existing system, will determine the ultimate success of how well that weapon fulfills its intended mission. We must rely on the good judgment and experience of our program managers and contracting officers to make these decisions.

Likewise, the division of technical, cost, and schedule risk between the contractor and the Government should be negotiated on a case by case basis within broad guidelines. The variables of the risk equation of such things as the appropriate type of contract to be used must also be left to the good judgment of our contracting officers and their industry counterparts, within the general guidelines of the FAR. (211:363)

In summation, the DoD witnesses said that legislative remedies were unnecessary because the problem was not prevalent, DoD had already revised regulations to resolve the issue, and statutory requirements would take flexibility away from the people in the acquisition community. The industry witnesses who addressed the need for a statute argued, on the other hand, that legislative remedies were unavoidable. These witnesses believed that the use of fixed-price development contracts was widespread and that, because of organizational inertia, administrative remedies were insufficient.

Proper and Improper Uses of Fixed-Price Development

Contracts. Opinions of the witnesses were divided about the use of fixed-price type contracts for development. Witnesses from both industry and DoD shared the view that fixed-price type contracts were appropriate for some development programs. One industry witness stated that fixed-price type contracts were inappropriate for development in any case. In the end, the shared views were carried forward into the committee report which accompanied S. 2355.

The DoD acquisition executives first expressed these opinions in response to a question from the Subcommittee chairman.

SENATOR BINGAMAN. On some fixed-price contracts, we have had quite a bit of discussion in this advisory group as to the application or the applicability of that [sic] firm fixed-price or fixed-price type contracts to research and development activities. And that is something we are trying to get some handle on through our legislative effort.

Do you folks have thoughts as to when and in what circumstances it is appropriate to use a firm fixed-price or fixed-price type contract for R&D?...

MR. GARRETT...there are times when a firm fixed-price contract may not be inappropriate. We have had a couple situations where we have gone before the Defense Acquisition Board.

I think the combat submarine system was an example where we agreed on a firm fixed-price incentive [sic] contract. It was a situation where both of the parties felt that the risks were sufficiently understood and that this was the proper vehicle.

That is not true in all cases. And so our position now is that they will be used only under the guidance that is presently in existence, and that is it will come through me, if we intend to use one, and then I must seek a waiver from Dr. Costello in the appropriate circumstances.

DR. COSTELLO. In the program that Mr. Garrett mentioned, there was first of all a cap on costs, with the ceiling price being adequate to perform the work required... (211:338-339)

Dr Costello then described the successful outcome of a DARPA prototype acquisition which used a firm fixed-price contract.

It was an R&D contract. It was done by DARPA. It was a prototype. He [the builder] was Burt Rutan, and among his accomplishments, he built the Voyager aircraft that went around the world.

He also built an aircraft for DARPA, a revolutionary airplane called the Advanced Technology Tactical Transport. It involved lots of structural and material leading edge capability. The specification was 14 pages. The contract was less than 45 pages, including all the boiler plates.

He knew, and we knew exactly, what we wanted on a development program. In order to address his concern about burdensome oversight, he said I am going to take a fixed-price contract and you are going to stay out of my plant.

We did. It was a 2-year contract for \$2.5 million. The plane is flying today and has passed all of its performance criteria. He has had one auditor in his plant, and that was unnecessary.

In that type of program, if we had not gone with that type of contract vehicle, we would not have the airplane today and it probably would have cost at least twice as much.

MR. GARRETT. I think it came in under budget, ahead of schedule...

MR. WELCH...we too believe that there are real opportunities in the fixed-price incentive arena, and some appropriately in the firm fixed-price. But the right thing to do is to get the appropriate contract into the acquisition strategy at the front end and have it talked out, but not to try to prejudge. (211:339-340)

Several points came out in this dialogue. First, in the case of the combat submarine system, the risks were understood and the upper limit of the government's obligation was adequate to perform the work required. Second, in the case of the DARPA prototype aircraft, both the government and contractor knew what was wanted in the development program.

In his summary statement given to the Subcommittee, the DoD Deputy Inspector General further clarified the consideration of risk involved. Not only should the government and contractor understand the risk, but the risk itself ought to be low. Programs which had a high risk were unsuitable for application of a fixed-price type contract.

You have to look at what the Department wants to have developed before the type of contract is selected. If we want to develop a new truck, it is a relatively low risk...

On the other hand, it would certainly not be very appropriate to use a truly fixed-price contract where we have one price and that is the end of it when we are trying to develop a very high risk, esoteric, and entirely new weapon system. (211:352)

In a summary statement given to the Subcommittee, an industry witness, Mr Kushner, who testified after the DoD Inspector General, spoke out against using fixed-price type contracts in development.

Mr Kushner's suggestion that the Subcommittee define the language for the issue of fixed-price contracting touches the core of the policy debate.

MR. KUSHNER...When we talk about fixed-price contracting for research and development and for early development, the basic issue is that of the use of inappropriate forms of contracting methods. It is simply inappropriate to use fixed-price contract methods, whatever dollar threshold you set and whatever you call the procurement.

You have heard some comments earlier today that alluded to some other types of contracts, such as fixed-price-incentive contracting, which perhaps implied that such contracts are something quite different and do not have the same potential impact as the fixed-price contract form.

It seems to me what that really suggests is the importance of defining language for the issue of fixed-price contracting. To make clear when it is inappropriate, is very important and ought to be addressed before the bill is finalized. (211:457)

In the committee report, the SASC followed up on Mr Kushner's suggestion in its request to DoD to establish guidelines for the use of fixed-price development contracts.

Another industry witness, Mr Kwiatkowski, who testified after the DoD Deputy Inspector General, continued the effort started by Mr Kushner. In a question-and-answer session, he suggested that the problem appeared to be how to define research and development. The previous witnesses from the DoD had given examples of procurement situations in which a fixed-price type contract was either appropriate or not. Now, Mr Kwiatkowski implied that participants in this policy discussion ought to continue their efforts at definition by specific example with the goal of finding a definition at a higher level of abstraction.

MR. KWIATKOWSKI. The problem appears to be the definition of the words "research and development." Everything we do for the various service laboratories is under research and development categories - 62, 63 categories of FYDP [Five Year Defense Plan] money.

Building a truck, to me, does not sound like a real risky development job. But all the things we do for the laboratories has [sic] a lot more risk. We do not build trucks for labs.

We do not take an airplane that has already been built from somebody else and do a fixed-price contract for modifications to it.

I do not consider those development jobs. I do not consider those high technology...

SENATOR BINGAMAN. But I guess we are agreed that, regardless of the size of the contract, we are talking about the need for some mechanism to permit the use of firm fixed-price contracts where they are appropriate.

MR. KWIATKOWSKI. Yes.

SENATOR BINGAMAN. But not to have a requirement that they be used.

MR. KWIATKOWSKI. Everything you described did not sound to me like a research and development effort.

SENATOR BINGAMAN. Right.

MR. KWIATKOWSKI. So they did not fit that category or were appropriate for that category.

The other language you have in there is that we do not get involved in major weapons systems or sub-assemblies, the small business community, us \$5, \$10, \$15, \$20 million contractors. So we are doing technology forefront work. We are doing development work. We are integrating unique, one of a kind specials, two, three, or four systems. So there is a difference, and we think we are doing development. (211:474-475)

The witness gave two specific examples of acquisitions which he believed did not qualify as a development effort. He then began the effort to find a more abstract definition of "research and development" by explaining it in terms of maturity of technology and the number of required systems, rather than explaining it in terms of a particular system. Another industry witness then spoke and continued the effort to clarify the appropriate use of fixed-price type development contracts.

MR. PURPLE. What I was going to say, Mr. Chairman, and it fits I think with what you are saying, the requirement to meet a firm specification with research and development required to achieve that specification is where you have the high risk of achieving the fixed-price dollars, regardless of whether it is small, large, \$1 or \$10 million.

You can lose as much on \$1 as you can on \$100 million. You can find yourself trying to meet a specification, a firm specification - this table shall be absolutely level - for \$100. Well, guess what; it might cost me \$100 million to make this table absolutely level.

The word "specification," if it is firm, if it is so hard-over as to what it is, then you have a tremendous risk of getting there. And that is where you have that problem.

If, however, it is a goal, develop a new material, develop something else, try to get a solid state power amplifier that will form a certain power output, et cetera, et cetera, that is your goal. Try to accomplish that in a year, put so many dollars into that goal being accomplished.

That can be fixed-price. That is not a risk because you do not have a firm specification. It is not yet going into operation in a tank or in an airplane or whatever, the R&D is being performed at that point for an experimental system.

When he [USD(A)] mentioned Rutan, I think a little earlier, about that contract he had, I have not seen the contract, but I would be willing to bet that is not a firm hard-over specification to meet, an end fighting machine.

Whatever it is he is going to do, it is an experimental device to see if it might meet the following specifications, and it is not going to be as hard on him as it is a firm fixed-price development of something to a hard specification for battlefield use.

There is an entirely different spectrum in that kind of definition. (211:475)

This witness suggested two criteria for determining the kinds of development programs for which a fixed-price type contract is appropriate. The first criterion was whether or not the contract's specification is a set of goals or a set of firm requirements. The other criterion is whether the end item is an experimental system or a fighting machine intended for battlefield use.

Mr Kushner's response to a question from the Subcommittee chairman concluded the question-and-answer session's dialogue on the use of fixed-price type development contracts. Mr Kushner again stressed the need for definitions and ended with an exhortation to continue the work.

SENATOR BINGAMAN. Mr. Kushner, do you have a comment on this firm fixed-price problem?

MR. KUSHNER. Well, I would like to really go back to what I said earlier. I think it is an important issue. I think it ought to be addressed.

I do not think it is easy to do it legislatively, but I think it is worth a try. And the reason it is not easy to do is because, as you have just heard us say, the definitions that are required to nail down what you mean by either a fixed-price contract, or fixed-price-incentive contracts, or the applications of such fixed-price contracts require a lot more work than the bill [S. 2254], as it reads, demonstrates has gone into explaining it.

Jerome Kwiatkowski alluded to one of the problems being the source of the money to fund such contracts. There are research and development funds that are not used to buy research "products" but to buy off-the-shelf products or products that are relatively well defined to be used in research and development programs that are perfectly amenable to a fixed-price contract.

On the other hand, when you are trying to push the technology to its limits, when there is a specification that says, this is what I would like to have, you very often have no idea what it is really going to cost until you get to the end.

I think a lot more work is needed and it deserves your attention. It is a serious, serious problem for us. (211:476)

Mr Kushner implied that the FYDP categories are, in themselves, inadequate criteria for determining the application of fixed-price contracts. He suggested that a product's degree of maturity would be a useful criterion, positive examples of which were products which were at least well-defined if not off-the-shelf. He then gave a negative example of the degree of maturity. This example was a product whose creation required the contractor to push to the limit of technology, a by-product of which was the inability to predict the final cost outcome.

Representatives from the GAO also testified before the Subcommittee. In its response to the IAG issue papers, as well as in prepared and summary statements of its representatives, the GAO provided criteria for determining whether a fixed-price contract is appropriate for a particular development program. The GAO described these criteria, one of which was related to the by-product of Mr Kushner's negative example given above. The excerpt below is from the GAO's summary statement.

We agree that fixed-price contracts should generally not be used in the development phase or when considerable cost uncertainty exists. Procurement regulations have long required contracting officers to negotiate a contract type and price that will reasonably reimburse contractor risk while protecting the government and providing the contractor the greatest incentive for efficient and economical performance. (211:497)

The GAO's position also implies that government contracting officers need flexibility to negotiate a contract type. This flexibility is related to what the DoD witnesses had said earlier would be limited by statutory requirements.

Results of Improper Use of Fixed-Price Type Contracts. Both DoD and industry witnesses described unfavorable consequences of this procurement practice. In a response to an IAG issue paper printed in the published hearings, USD(A) presented the following points in a discussion on the problem of fixed-price R&D contracts.

...if as a result, DoD causes the contractor to become bankrupted, then the contractor cannot deliver the product to DoD. Further, this approach may lead to misuse of the contract changes provisions in order to give the contractor an avenue to "get well". In addition, a fixed-price type contract may keep DoD in the dark about contract performance until the problem reaches major proportions. (211:309)

In a question-and-answer session with DoD's acquisition executives, USD(A) mentioned again the following unfavorable outcome and its financial impact on the DoD: "The worst thing you can do is bankrupt your supplier. It costs you much more money to bring another one back into a position where he can contribute" (211:340).

The industry witnesses were unanimous in their opinion that the improper use of fixed-price development contracts could result in unfavorable outcomes. One witness, Mr William Purple, discussed the outcomes of government procurement policies in his prepared statement.

...unless corrective actions are taken by the government, industry will be forced to: reduce R&D; reduce its investment for productivity enhancement and modernization; and, reduce risk by using low-technology alternatives. I am also concerned that competition will be reduced as companies take exception to objectionable contract terms and conditions that, in effect, make winning defense contracts a losing proposition. (211:434-435)

In its comments on the IAG report, the National Security Industrial Association (NSIA) specifically addressed the use of fixed-price development contracts. The NSIA described the result of heavy financial losses from unfavorable cost risk.

One of the fundamental concepts of the American economic system is that profit is the reward for the assumption of

risk. In recent years, we have witnessed too many instances where contractors were pressured to accept fixed price contracts for effort which was truly developmental in nature. In some of these cases, the risk was so great that the contractor suffered enormous losses and will never recover sufficiently to conclude that acceptance of the fixed price contract was worthwhile. (211:447)

In his summary statement, Mr Kwiatkowski, an industry witness from the small business community, addressed the impact of this risk on his company.

Attempting to carry out this sophisticated research and development under risk adverse conditions is not good for Corvus or the Government. Getting rid of firm fixed-price development contracts is a good step...

Contract risk--small business has it all. If we do not perform we are out of business.

I gave you my comments on the limitations on use of fixed-price contracts for development. The little guy has all the risks and it is still fixed-price. (211:460,463)

Mr Joseph from the United States Chamber of Commerce gave prepared and summary statements to the Subcommittee as part of his testimony. He explained that government procurement policies have caused a serious drain on industry resources. The impact of these policies has been especially hard on subcontractors and the small business community.

Reductions in progress payments, requirements for up-front financing for special tooling and test equipment, revised profit policy, cost sharing on major systems development, and the routine use of fixed-price type contracts for development work have led to a serious drain on industry resources. This had resulted in an economic environment that has had a disproportionate effect on subcontractors and small businesses that are the foundation of our defense industrial base. These resources otherwise could have been of greater benefit to the nation. (211:545)

Mr Joseph then predicted the effect of this drain based on results of a survey conducted by the Chamber of Commerce.

A major finding of the survey is that more than 50 percent of the respondents who provided goods or services to DoD indicated that, in the future, their companies will curtail investment in capital equipment and research and development.

This is particularly dramatic when compared to the finding that, over the past three years, 74 percent of these companies had increased these investments. Clearly, the shift in financial risk is just beginning to have an adverse impact at the "grass-roots" level. (211:546)

DoD's policies that reduce industry's technological capabilities eventually run full-circle. Mr John Rittenhouse, the IAG chairman, explained the long-term impact on America's military force structure.

The United States is dedicated to a technologically superior, reliable force structure. Maintaining this superiority is vital to our national interest, since the alternative would be to attempt to field a numerically superior force, a clearly impossible task.

...This type of contract [fixed-price type development] does the nation a disservice. It fails to take into account the cost and design changes which inevitably occur during major system development.

The end result is less technological risk taking - an approach from which we'll reap what we sow - a gradually degrading technological edge. (211:586)

In summation, both DoD and industry witnesses identified unfavorable outcomes from use of fixed-price type development contracts. DoD recognized that financial loss, untimely delivery of required supplies and services, misuse of contract provisions, and inability to closely monitor contract performance could result. Industry believed that a shift of long-term investments away from defense into other areas of business could occur. This shift would reduce the technological edge of the armed forces.

Debates. The only debate on the use of fixed-price development contracts took place on 16 May 1988 when the Senate considered amendment 2079 to S. 2355. This debate consisted of the remarks and clarifications of Senator Stevens, who introduced the amendment; Senator Nunn, the SASC Chairman; and, Senator Warner, the SASC ranking minority member. These remarks and clarifications provide useful insights into the statute and the process which created it.

The debates explain the procurement practice with which the Senate was concerned. Both Senator Stevens and Senator Nunn suggested that the maturity of development programs was incompatible with a contract structure which could not adjust to the unfolding of a generally-defined, dynamic task. According to the remarks, research and development programs and their risks are not defined well enough to use a rigid pricing structure. Even though development cost savings may result from the use of a rigid pricing structure, the cost outcome over a longer period of time from an improper use of the rigid pricing structure may offset the earlier savings. These circumstances indicate that caution is needed when using fixed-price contracts for development.

Mr. STEVENS...I agree with the Senator from New Mexico [Mr Bingaman] that most research and development programs are too immature and not sufficiently defined to permit a rigid contracting structure. I agree that we must be wary in attempts to save money in the R&D phase by forcing contract terms. We probably could save a dollar in R&D costs, however, only to spend \$5 in procurement change orders if we are not careful. (139:S5879)

Mr. NUNN...While we want fixed-price contracting anytime we can get it where it makes sense, there were some instances in the last several years that the Department of Defense has insisted on fixed-price contracting when the elements of risk and when the research was at a very primitive stage and made it impossible to have a sensible fixed-price contract. (139:S5880)

Senator Stevens explained that section 802 of S. 2355 was the SASC's response to its concern. Yet this kind of response had to be used with great care. Even though the concern over the use of fixed-price type development contracts had merit, Senator Stevens believed that the Congress had to be careful about the method of extending its oversight into this area.

Mr. STEVENS...The present provision in this bill before the Senate...places a limit on the use of firm fixed-price

contracts in full-scale engineering development programs. My concern is not so much with the issue of the use of this contracting mechanism. I am worried by the precedent of the Congress restricting specific contracting practices of the Department of Defense. (139:S5879)

He believed that unnecessarily restrictive congressional oversight would eliminate one unfavorable circumstance while creating another.

Mr. STEVENS...We should be careful not to tie the hands of the program managers and contract officials at the Pentagon with too many legislative restrictions as we continue to tighten defense budgets and demand even more bang for the buck. We must not forestall contracting and management options that can prevent gold plating of some of the weapon systems. (139:S5879)

Senator Stevens explained that section 802 of S. 2355 was preferable to an earlier, more restrictive legislative remedy which had originated in the House. The implication was that the preferred approach would avoid the lack of flexibility and still have the same effect.

Mr. STEVENS...Last year we faced an even more stringent proposal from the House Appropriations Committee. I opposed that initiative, also. Ultimately, in conference, we settled on report language that is contained in the report that accompanied the continued [sic] resolution.

I believe the proposal in the bill that is before the Senate now takes a more reasoned approach to the issue. (139:S5879)

The purpose of Senator Stevens' amendment was to further refine the Senate's approach by changing section 802 from a permanent provision to a two-year provision. This was expressed in a dialog between Senators Stevens, Warner, and Nunn. An examination of the text of the debate reveals broad support for what Senator Stevens was trying to achieve. The floor managers for S. 2355 on both sides of the aisle spoke in favor of the amendment.

Mr. STEVENS...I ask my good friend from Georgia and my friend from Virginia if this amendment is acceptable.

Mr. WARNER. Mr. President, we have had the opportunity to examine the amendment of the Senator from Alaska. It is acceptable to this side.

Mr. NUNN. Mr. President, it is my understanding the Senator's major change here is to convert a permanent provision on a fixed-price contracting provision into a 2-year provision to determine whether it is working and give us a chance to assess it without making it permanent. Is that correct?

Mr. STEVENS. That is correct. That is the major change. It makes a fixed time period during which we can analyze the impact of this.

Mr. NUNN. I think this is a good amendment. This is a complicated area...We are trying to strike a proper balance under the rules of fixed-price contracting in that area, the R&D area, as opposed to the procurement area. I believe the 2-year limitation will give us a chance to further assess that. So I urge our colleagues to support the amendment. (139:S5879-S5880)

Senator Stevens' remarks also reveal that he intended the amendment to provide a more favorable position with which to begin conference committee action with the HAC over H.R. 4781, the bill for FY 1989 DoD appropriations.

Mr. STEVENS...This compromise, I think, will avoid more restrictive legislation in the appropriations process later this year. This is a provision that I think both the authorizing committee and the Appropriations Committee can live with for at least a 2-year period to study the impact of such a restriction. (139:S5879)

Mr. STEVENS...I might say that it is my goal to avoid this issue in the appropriations conference which, by its nature, is going to take place much later in the session. If the authorizing committee from the Senate can obtain approval of the authorizing committee from the House on this measure, I think it will eliminate a substantial controversy between the House and the Senate in the appropriations conference. (139:S5880)

His remarks suggest that the concurrence of the conference committee on FY 1989 DoD authorizations and the approval of the President would create a statutory provision whose existence would forestall any attempt to enact additional, more restrictive legislation.

Chapter Summary

The committee hearings on the FY 1989 DoD Authorization Act provided a great deal of information on the circumstances which caused

the enactment of the statute. The DoD's use of fixed-price type development contracts was a response to cost growth from open-ended commitments of cost-reimbursable type contracts. DoD believed that limiting the resource investment on low-risk development programs by using a contract type which placed a firm upper limit on cost liability was a prudent business practice. Industry indicated that this practice caused financial loss when either government or industry acquisition personnel, or both, underestimated the amount of risk involved. The financial losses, if large and frequent enough, would drain the treasuries of defense industry and divert investment from capital equipment and new technology. One outcome of the diversion would be a less technological risk-taking. The end result could be a military force structure, without its accustomed qualitative, technological superiority, committed to fight a war from a less favorable posture.

A broad consensus in the Senate believed that the circumstances of improper applications of fixed-price type development contracts were serious enough to require congressional involvement. The Senate proceeded cautiously, however, in creating its legislative remedy. The legislative history shows that the Senate shared DoD's concern about imposing requirements that would reduce the flexibility of acquisition personnel. The varying texts of the legislation show a clear, overall trend toward limiting the statute's application. Each revision either reduced the number of contracts and exempted certain systems and agencies from compliance, eliminated reporting requirements, or established time limitations for the statute's applicability. The debates also show that lack of flexibility was undesirable. As the legislative proposal went through the enactment process, the overall effect of the statute was decreased.

Congress chose a legislative remedy which directed DoD to implement the policy change by issuing regulations to guide the acquisition community. Congress gave DoD a great deal of flexibility to determine what kinds of development programs were compatible with fixed-price type contracts. The committee reports established the relationship between high innovativeness and the inability to accurately estimate costs. The reports also related this inability to cost risk, one of whose outcomes could be unanticipated costs and, eventually, financial loss and renegotiation. With the effect of limiting the use of fixed-price type development contracts to procurements which satisfied the two criteria of realistic pricing and allocation of risk, contractors would not carry the financial liability that could result from a rigid pricing structure when the risks were not clearly defined and the possible financial outcomes could not be estimated with a high degree of certainty. Instead, the contract pricing structure would provide for a variety of cost outcomes that could result from the unfolding of a generally-defined, dynamic task. Congress would then have achieved its purpose when DoD's acquisition community used a contract type that was compatible with the nature of development effort.

VI. Section 105 of the Defense Authorization Amendments and
Base Closure and Realignment Act (Public Law 100-526)

The narrative has shown that, by early October of 1988, the President had signed into law two bills, one for FY 1989 DoD appropriations and one for FY 1989 DoD authorizations, each of which had a provision on fixed-price type development contracts. A comparison of the texts of these two statutory provisions reveals different requirements. To preclude any possible conflict which might result from these two sets of requirements, Congress enacted additional legislation which reconciled the existing public law. The vehicle for the amending legislation was S. 2749, initially the bill which the Senate used to re-start the DoD authorization process after the President vetoed the first FY 1989 DoD Authorization Act, and which was later pressed into service as the vehicle for Congress' proposal to realign or close military installations. The President signed the enrolled bill for S. 2749, and the amending legislation became a part of public law as section 105 of P.L. 100-526. This chapter gives the legislative history of this statutory provision and then an analysis of the history. A chapter summary provides concluding remarks.

Legislative History

As described in the last chapter, the history of S. 2749 began after the President vetoed H.R. 4264, the first FY 1989 DoD Authorization Act passed by Congress. In the beginning, S. 2749 was the Senate bill which started the process to produce a second

enactment to authorize FY 1989 appropriations for the DoD. The Senate passed this bill on 11 August 1988 and sent it to the House for further action (159:S11755-S11756). The bill remained in the House until early October.

In the meantime, H.R. 4481, initially a proposal to realign or close military installations, was amended to remove the text for these realignments and closures and to substitute the text of S. 2749 for FY 1989 DoD authorizations as passed on 11 August 1988 (162:S12591-S12632, S12669-S12670). Having now become the vehicle for a different proposal altogether, H.R. 4481 was negotiated in conference committee action (171:D1232). Both houses of Congress agreed to the conference report, and the President signed H.R. 4481 into law as P.L. 100-456, the FY 1989 DoD Authorization Act (170:D1229, D1233; 177:H9633).

With a public law in hand for FY 1989 DoD authorizations, the House and Senate then acted on the temporarily deferred proposal for military installation realignment and closure. On 3 October 1988, the House resumed consideration of S. 2749 (175:H9381). The HASC chairman offered a motion to strike out the text for FY 1989 DoD authorizations and replace it with the military installation realignment and closure provisions of H.R. 4481 as passed by the House earlier in the year (175:H9381-H9383). The House agreed to the motion, passed S. 2749 as amended, requested a conference with the Senate, and appointed conferees (169:H9383, D1273). On 5 October 1988, the Senate was notified of the action on S. 2749 (176:S14606). The Senate disagreed with the amendments of the House, agreed to the requested conference, and appointed conferees (176:D1295).

Conference committee action concluded on 11 October 1988, and the conference report and joint statement were submitted to the

House (178:H9945,D1227). The texts of these documents were printed in the Congressional Record and published as a separate report (178:H9945-H9952; 184). An examination of the text of the conference report shows that the conferees added several provisions to S. 2749 which were unrelated to the provisions for base realignment and closure. One of these additional provisions concerned fixed-price type development contracts.

Sec. 105. Fixed-Price Development Contracts.

Section 8085 of the Department of Defense Appropriations Act, 1989 (Public Law 100-463), related to fixed-price development contracts is amended by--

(1) striking out "fixed price-type contracts" and inserting in lieu thereof "firm fixed-price contracts"; and

(2) striking out ": Provided further," and all that follows through the end of the section and inserting in lieu thereof a period. (178:H9946; 184:3)

The conference report provided the following explanation for the conferees' action:

Regulations on Use of Fixed Price Development Contracts (sec.105)

Section 807 of the fiscal year 1989 Defense Authorization Act (Public Law 100-456) required the Secretary of Defense to prescribe guidelines limiting the use of fixed price contracts for development programs. The section also precludes use of firm-fixed price development contracts in excess of \$10 million unless approved by the Under Secretary of Defense for Acquisition.

The fiscal year 1989 Defense Appropriations Act (Public Law 100-463) requires the Under Secretary of Defense for Acquisition to approve all "fixed price-type" development contracts (not just "firm-fixed price" development contracts) in excess of \$10 million. The Under Secretary's authority cannot be delegated below the level of an Assistant Secretary. In addition, the provisions requires [sic] the Department of Defense to notify Congress 30 days prior to authorizing any "fixed-price type" development contracts in excess of \$10 million.

The conferees agree that careful scrutiny of fixed-price type development contracts is desirable, but believe that regulations required by the Authorization Act should be promulgated and given a chance to work before imposing high

level internal review and Congressional notification requirements on all fixed-price type contracts. Accordingly the conferees agree to delete the additional approval and reporting requirements contained in the Appropriations Act. (178:H9950; 184:17-18)

The House and Senate agreed to the conference report on 12 October 1988 (179:S15554-S15567,H10033-H10041,D1334,D1336). On 18 October 1988, the enrolled bill was presented to the President for signature, and six days later the President signed S. 2749 into law as P.L. 100-526 (180:S16716; 181:S17351). The text of section 105, now a part of public law, reads as follows:

Sec. 105. Fixed-Price Development Contracts.

Section 8085 of the Department of Defense Appropriations Act, 1989 (Public Law 100-463), related to fixed-price development contracts is amended by--

- (1) striking out "fixed price-type contracts" and inserting in lieu thereof "firm fixed-price contracts"; and
- (2) striking out ": Provided further," and all that follows through the end of the section and inserting in lieu thereof a period. (121:102 STAT. 2625)

Analysis

Because section 105 became a part of S. 2749 very late in the legislative process, the legislative history is very limited. The only source which is available to clarify this provision is the joint explanatory statement of the committee of conference. The first two paragraphs of the explanation summarize the major differences between the provisions on fixed-price type development contracts in the FY 1989 DoD Appropriation Act, P.L. 100-463, and the FY 1989 DoD Authorization Act, P.L. 100-456. The requirement to issue guidelines for the use of fixed-price type contracts is unique to P.L. 100-456. P.L. 100-463 has no language in this regard. On the other hand, P.L. 100-463 requires advanced notification to Congress prior to award of a fixed-price type

development contract, a requirement which is not in P.L. 100-456. Both P.L. 100-456 and P.L. 100-463 require senior OSD management to approve the decision to use certain fixed-price type development contracts; however, P.L. 100-456 limits this oversight to only firm fixed-price contracts. This limitation gives DoD more flexibility, whereas P.L. 100-463's requirement affects all fixed-price type contracts--not only firm fixed-price contracts, but also fixed-price incentive, fixed-price with economic price adjustment, and fixed-price redeterminable contracts--and creates more oversight of DoD's decision.

The last paragraph explained the conferees' preference for the remedy which gives DoD more flexibility. The remedy is founded on the responsibility of senior OSD management to issue regulations. After publication of the regulations, senior OSD managers would become personally involved in selecting the contract type only in a certain situation. This situation is when a military department or defense agency wishes to use a firm fixed-price development contract whose value exceeds \$10 million for a major system. The remedy excludes altogether the direct involvement of Congress. The remedy not only provides shifting the task of oversight from Congress to DoD, but also consciously excludes senior OSD management review of all but one kind of fixed-price type development contract. This exclusion suggests the potential of entrusting the bulk of the oversight task of fixed-price type contracts for development programs to an appropriate level of management in DoD's acquisition community. Thus, the conference report implies that the circumstance which occasioned the flexible remedy in section 105 was the restrictive remedy in section 8085 of the FY 1989 DoD Appropriations Act.

The effect of section 105 on section 8085 is shown in Figure 7 below. Section 105 deleted the language that is struck through and added the language printed in italic. Change ① limited senior DoD executive review to only firm fixed-price type contracts. Change ② eliminated the requirement for prior congressional notification.

Sec. 8085. None of the funds provided for the Department of Defense in this Act may be obligated or expended for ~~fixed price type contracts~~ *firm fixed-price contracts* in excess of \$10,000,000 for the development of a major system or subsystem unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced to the extent that realistic pricing can occur, and that the contract type permits an equitable and sensible allocation of program risk between the contracting parties: Provided, That the Under Secretary may not delegate this authority to any persons who hold a position in the Office of the Secretary of Defense below the level of Assistant Secretary of Defense.: Provided further, That at least thirty days before making a determination under this section the Secretary of Defense will notify the Committees on appropriations of the Senate and House of Representatives in writing of his intention to authorize such a fixed price-type developmental contract and shall include in the notice an explanation of the reasons for the determination.

Figure 7. Revisions to Section 8085 of P.L. 100-463 in Section 105 of P.L. 100-526

With this legislation, Congress chose the more flexible remedy in section 807 of the FY 1989 Authorization Act. This remedy would still have the effect of limiting the use of fixed-price type development contracts to procurements which satisfy the two criteria of realistic pricing and allocation of risk. This limitation would still allow Congress to achieve the purposes sought for in other legislation on fixed-price type development contracts.

Chapter Summary

In reconciling the different requirements for fixed-price type contracts contained in the FY 1989 national defense statutes, Congress chose a less restrictive remedy over a more restrictive remedy to achieve the desired effect and purpose. Congress excluded itself from direct oversight. Congress also limited the required amount of senior OSD managers' personal attention to one kind of fixed-price type development contract. Conversely, Congress gave DoD the freedom to administer as it wished the use of the other kinds of fixed-price type contracts on development programs. This less restrictive remedy increases the contracting officer's independence by decreasing the number of people who have the opportunity to affect the contracting officer's selection of contract type.

VII. Summary, Findings, Conclusions, Recommendations,
and Suggestions for Further Research

This chapter will first summarize this research effort as preparation for discussing the findings and conclusions to the investigative questions. After this discussion, specific recommendations will suggest further actions to implement the existing guidance on the use of fixed-price type development contracts. The chapter will conclude by providing several topics for further research.

Summary of Research Effort

Since October of 1987, Congress included in four public laws provisions that extend congressional oversight into the use of fixed-price type development contracts. These provisions are section 8118 of P.L. 100-202 (the FY 1988 DoD Appropriations Act), section 8085 of P.L. 100-463 (the FY 1989 DoD Appropriations Act) as amended by section 105 of P.L. 100-526 (the Defense Authorization Amendments and Base Closure and Realignment Act), and section 807 of P.L. 100-456 (the FY 1989 DoD Authorization Act). Not only do these provisions require USD(A) to issue determinations about realistic pricing and allocation of risk prior to award of a fixed-price type contract for certain development efforts, but section 807 of P.L. 100-456 also requires DoD to issue implementing regulations. DoD did this on 31 January 1989 in DAC 88-4 which added guidance to the DFARS on the use of fixed-price type development contracts.

With the publication of the new DFARS guidance, this research effort was begun to determine the nature of appropriate, further implementation by the military departments. One of the desired

outcomes of the research would be a recommendation for the level of flexibility which further implementing regulations should give field organizations. The other desired outcomes were recommended definitions which would clarify the two criteria of realistic pricing and allocation of risk. These criteria are the statutory basis on which the use of a fixed-price type development contract is approved. Clarifying these criteria would provide the basis for describing the content of a written justification on which USD(A) could issue the determinations. As explained in the first chapter, these recommendations would be most satisfactory if they were based on a full background of congressional concerns.

This thesis reviewed the literature on the use of fixed-price type development contracts and concluded that, in a fixed-price type development contract, an imbalance can be created between the pricing provisions, contract clauses, and the SOW and specifications. The literature review in the first chapter gave a hypothetical example of this imbalance. This example was a fixed-price contract with firm delivery dates and an upper limit on the government's financial liability for a development program which demanded technical, schedule, and financial results whose outcomes are uncertain. The risk resulted when the contract's financial and schedule requirements did not allow for the amount by which the different outcomes can vary because of uncertainty. The literature review also pointed out that the force of competition allowed the government to use a fixed-price type contract when a cost-reimbursable type contract would provide a more flexible structure to accommodate varying outcomes. Competition also limited the contractors' ability to include price contingencies in the proposal as remedies for the uncertainty. The contractors then assumed a much

larger share of the financial risk. Thus, both the FAR and DoDD 5000.1 express a preference against the use of fixed-price type development contracts. The second conclusion from the literature review was that no documented research existed which described the new legislation on fixed-price type development contracts or the approach the military departments should use to implement the DFARS guidance. Having identified this problem, three investigative questions emerged which gave direction to the research effort.

1. Should the military departments supplement the DFARS with additional, more restrictive regulatory guidance?
2. What is "realistic" pricing?
3. What is an "equitable and sensible" allocation of risk?

The research effort then developed a methodology to determine the degree of flexibility for further guidance and to define statutory terms. The second chapter explained that, under the American system of representative democracy, the legislature is best suited to create policies to solve problems and control events and groups of individuals or things. The legislature's delegation of power by the states through their ratification of the Constitution to create or adjust these policies is supreme. The policy-making function assumes that a vehicle exists for making known the legislature's desires and hopes to those who implement the policy. That method is the statute in valid form whose content is constitutionally acceptable. From these conceptions resulted the methodological approach that additional regulations and clarifying definitions should emphasize the desires and hopes of the legislature which created the statutes.

The methodological approach in the second chapter provided definitions and techniques for gathering information and then presented

the integrating approaches used to examine this information. For all three investigative questions, the source of information was the legislative history of each of the four statutes. For investigative question #1, the primary source of information was the varying texts of the legislation, and the integrating approach was the textual evolution of the four statutes. The conclusion for this question would be a recommendation either for or against additional, more restrictive regulatory guidance from the military departments to supplement the DFARS. For investigative questions #2 and #3, the sources of information were the explanatory sources of legislative history, and the integrating approach was that of determining statutory purposes. The conclusions for these two questions would be assigned meanings which must achieve the statutory purpose and be such that the terms being defined could plausibly carry the assigned meaning. From this methodological approach, a number of findings emerged.

Findings

Investigative Question #1. The examination of the textual evolution to determine the basis for additional, more restrictive guidance shows a definite general trend from more restrictive language to more flexible language.

In the third chapter, a comparison of section 8118 of P.L. 100-202 with its predecessor section 8105 of H.R. 3576 revealed five major changes in a single round of revision. These five changes reduced the number of contracts affected by adding a \$10 million threshold, delegated responsibility for notification of congressional committees from the Secretary of Defense to USD(A), reduced the frequency of notification of congressional committees from a report submitted for

each contract to a quarterly cumulative report, changed the timing of the notification from prior to contract award to after contract award, and removed the requirement for DoD to explain in the notification the rationale for using a fixed-price development contract. The text was never amended to reduce DoD's flexibility; rather, all of the changes gave DoD more latitude.

The fourth and sixth chapters discussed the final outcome of the FY 1989 DoD appropriations statute. The text of section 8085 of P.L. 100-463, as enacted, was the same as the text reported out of committee. However, section 105 of P.L. 100-526 later amended section 8085 by applying the legislation to only firm fixed-price contracts rather than all fixed-price type contracts and removing altogether the requirement to notify congressional committees of DoD's decision to award a fixed-price type development contract. The final outcome of the FY 1989 DoD appropriations statute built in more flexibility for the DoD and paralleled the flexibility allowed in section 807 of the FY 1989 DoD authorization statute, P.L. 100-456.

The text of section 807 of P.L. 100-456, discussed in the fifth chapter, had the most complicated textual evolution of the four provisions. Four rounds of revisions produced changes which decreased the number of contracts and executive branch agencies affected by the legislation, eliminated all congressional notification requirements, limited the time during which oversight was required, and exempted certain kinds of acquisitions from compliance with statutory approval requirements. Only one major change had the effect of imposing greater oversight on the DoD. This change was added during conference committee action and raised the level of senior OSD management review from USD(A) to the Secretary of Defense. But even

with this one revision, most of the amendments to section 807 gave DoD greater flexibility.

Not only do the textual evolution and the committee reports and debates reveal an unmistakable trend toward greater flexibility, but this trend is evident in a comparison between the statutes when grouped by fiscal year. The FY 1988 legislation, section 8118 of P.L. 100-202, required determinations on realistic pricing and allocation of risk for all fixed-price type development contracts greater than \$10 million. The final outcome of all FY 1989 legislation, however, was to require determinations for only firm fixed-price development contracts greater than \$10 million. The text of the joint statement of the managers for the FY 1988 legislation given in the third chapter, debates in the Senate over what would become the dominant FY 1989 legislation given in the fifth chapter, and the text of the joint statement given in the sixth chapter all testify to the desire to avoid unnecessarily close congressional scrutiny of DoD's management actions. This desire materialized in Congress' decision to require only cumulative quarterly reporting in the FY 1988 statute. In the FY 1989 statutes, reporting was eliminated altogether. This trend toward greater flexibility when the statutes are grouped by fiscal year confirms the trend toward greater flexibility evident in each statute's textual evolution.

A comparison of this general trend toward greater flexibility with the language from DAC 88-4 given at the beginning of the first chapter reveals that OSD chose to implement a more restrictive approach than Congress had enacted in any of its legislative remedies. The textual evolution analysis in the fifth chapter showed that the House and Senate conferees had eliminated language from H.R. 4264 which

would have applied the statutory approval requirements to the subsystems of a major system. An examination of the text of DAC 88-4 shows that OSD later added this language which the conferees had consciously rejected. This added restriction is found in the IAG draft, the earliest text of what would later become section 807 of P.L. 100-456, and was in all texts of the legislation until the conference committee took it out. Not only did OSD add a restriction which the conferees had considered and rejected, but the restriction is not congruent with the obvious trend from less flexible language to more flexible language that is apparent throughout the entire statutory history presented in this thesis.

Investigative Questions #2 and #3. At no place in any of the legislative histories of the four statutes was there an express definition of what makes pricing "realistic" or what makes an allocation of risk "equitable and sensible." However, an examination of the legislative history reveals insights into the existing circumstances, the chosen legislative remedies, and the desired outcome from which statutory purposes may be inferred. These purposes, along with the terms of statutes, can help in reaching conclusions on meaning.

Circumstances Which Caused Congressional Action. The legislative histories discussed two circumstances which moved Congress to enact legislation.

One circumstance was DoD's use of fixed-price type contracts for highly innovative development programs. The unfavorable outcome of the mismatch between the flexibility needed in a development program and the rigidity in the structure of a fixed-price type contract was discussed in the first chapter and summarized earlier in this chapter.

The texts of the committee reports in the third and fifth chapters described that DoD used these contracts based on what was believed to be inadequate guidelines. This inadequacy concerned the lack of detailed criteria on the application of fixed-price contracts to specific acquisition situations, insufficient analysis of risks, and the inability to accurately estimate cost outcomes. The texts of these reports explained that when the contract type was not compatible with the level of risk and the contract price did not reflect financial uncertainty, the beneficial outcomes of using a fixed-price type contract did not materialize. The text of the SASC committee report given in the fifth chapter explained the unfavorable outcome which resulted instead. Industry would suffer financial losses through unanticipated costs. Senior industry executives explained these unfavorable effects in SASC hearings for the FY 1989 National Defense Authorization Act. According to these executives, the financial losses contractors may suffer under fixed-price development contracts, if large and frequent enough, would drain the treasuries of defense industry and divert investment from capital equipment and new technology. Mr John Rittenhouse, senior vice president of General Electric Aerospace and chairman of the ad hoc committee appointed by the SASC to provide recommendations on improving the government and industry relationship, testified that this diversion would result in less technological risk-taking. He suggested that the military would then have to operate a force structure without its customary, decisive advantage of technological superiority. Mr B.F. Dolan, chief executive officer for Textron, Incorporated, stated in hearings for the FY 1989 DoD Appropriations Act that America maintains peace with superior personnel and equipment when opposed by a numerically superior force

structure. Thus, he continued, America must maintain its technological superiority by investments in long-term R&D. Mr William Purple, executive vice-president of Allied-Signal, Incorporated, and Chairman of the Board of Governors for the AIA, testified in hearings with Mr Rittenhouse and stated the same opinions as Mr Dolan.

The texts of the committee reports and debates presented in the third chapter show the other circumstance which brought about the legislation. This circumstance was the dilemma which DoD created in the congressional oversight and control process by the use of fixed-price type development contracts. The narrative in the first section of the second chapter clarifies this dilemma. This section showed that, on the one hand, Congress, as a branch of a sovereign government, must exercise its constitutionally delegated responsibilities. Congress' responsibility is to make policy and to communicate its decisions through statutes. Congress, then, has the duty to allocate a limited budget to satisfy compelling, competing national priorities as satisfactorily as possible. This limited budget has to satisfy demands related to both defense and non-defense requirements. The texts of the committee reports and hearings in the third chapter suggest that Congress would want to fund a promising development effort at the expense of other, less beneficial military or social programs. Later, if another need arises which is more compelling than the promising development program, Congress must satisfy this need if it is to use its delegated power to achieve the greatest benefit for the governed. As the representatives of the people, Congress had the obligation and required the flexibility to act on the revised priorities.

The committee reports also pointed out, however, that with the duties as a branch of a sovereign government, Congress also recognized

the government had the obligation to act as a responsible business partner. The reports imply that Congress believed the government, in certain situations, forgoes its sovereign power and takes on certain obligations more in keeping with an equal partner in contracts with industry. The first chapter explained how the fixed-price type contract obligates the contractor to deliver the required quantities of goods and services on schedule according to specifications within a fixed funding limit. In exchange, the government obligates itself to pay the contractor the price of the bargain. As an equal partner to a business arrangement, the government should bring the same commitment as its industry counterpart to the successful fulfillment of the shared contractual rights and obligations. The obligation in a fixed-price type contractual arrangement of timely payment for goods and services defines what the government's conduct must be as a stable, reliable business partner. It must protect its reputation by first providing firm, enduring requirements and then by funding the resulting fixed-price commitments as the contractor satisfies the requirements.

Revised budget priorities could unfavorably affect the government's position as a business partner by either requiring a change to the stated requirements, the negotiated fixed prices, or both.

The dilemma for Congress, then, arose when budget constraints kept the government from fulfilling its roles as both a sovereign power and an equal partner. On the one hand, the government had the obligation as a sovereign power to revise spending priorities based on a current assessment of existing needs. On the other hand, the government, as an equal partner, had not only the obligation to fund existing fixed-price contractual commitments but also the need to maintain its credibility in a stable, reliable business relationship.

Congress wished for the government to have the budgetary flexibility required of a sovereign while preserving the ability to satisfy business obligations and maintain the good reputation required of a partner.

Chosen Remedy and the Desired Outcome. Congress enacted a series of legislative provisions which required the DoD to award fixed-price type contracts for development programs based on the two criteria of realistic pricing and allocation of risk. To achieve consistent application among the military departments, senior OSD management oversaw the implementation of this remedy. This remedy was founded on the responsibility of senior OSD managers to issue regulations for those acquisition situations in which they would not be personally involved. Certain applications of fixed-price type contracts were significant enough that senior OSD management approval was required prior to contract award. The desired outcome was to limit the use of fixed-price development contracts to those acquisitions which satisfied the two criteria of realistic pricing and allocation of risk.

Statutory Purposes. The resulting reduced application of this contract type would allow Congress to achieve its purpose of choosing the composition of goods and services based on relative merit within the existing budget, as discussed in the third chapter. As a result of the reduced application of fixed-price type contracts, contractors would not carry the financial liability that could result from a rigid pricing structure when the risks were not clearly defined and the possible financial outcomes could not be estimated with a high degree of probability, as discussed in the fifth chapter. Instead, the contract's pricing structure would provide for a variety of cost outcomes that could result from a generally-defined,

dynamic task. Congress would have then achieved its purpose when DoD's acquisition community used a contract type that was compatible with the nature of development effort.

Conclusions

Investigative Question #1. Based on the general trend from more restrictive language to more flexible language as the final outcome of all the statutory provisions, the researcher concludes that the military departments should not add additional, more restrictive language to supplement what is already in the DFARS. For example, any DoD policy or regulation which requires OSD approval of any fixed-price type contract other than firm fixed-price would not be congruent with the legislative history of these statutes. A requirement for OSD to approve any fixed-price type contract for not only the major subsystems, but also all the other subsystems, of a major system has no rational basis in the legislative history. The military departments should implement the same level of flexibility already provided. They should guide their acquisition communities by means other than the addition of specific, regulatory language whose effect would be to increase the number of fixed-price type development contracts subject to review by higher headquarters. This guidance should take the form of positive direction which clarifies the approach the field activities should use when justifying the use of a fixed-price type contract for a development program. A suggested approach for this positive direction is presented in the conclusions for investigative questions #2 and #3 of this thesis.

Investigative Question #2.

"Realistic" pricing is the analysis which accurately portrays the risk of satisfying all financial obligations of the instant contract in the face of future events. "Realistic" pricing is the determination of the financial impact of these uncertain events and the generation of a distribution of possible financial outcomes with the probability of each occurrence. These outcomes are "realistic" in that they may occur, i.e., an estimated outcome could indeed become a reality, an accomplished fact. The product of "realistic" pricing, then, is the estimated range of possible financial outcomes with the probability associated with each occurrence.

"Realistic" pricing is a development from the concept which underlies the term "most probable cost" (MPC). This concept is captured in the word "probable" of MPC. The concept suggests that other financial outcomes besides the MPC are also likely; however, the MPC is the cost outcome with the greatest chance of occurring.

"Realistic" pricing can begin with the MPC and then continues to find the other possible cost outcomes on both sides of the MPC. Some of these outcomes are only a little less likely to occur than the MPC, while others would occur with a decreasing probability.

"Realistic" pricing is not merely an accurate point-estimate or even an accurate estimate of the range of financial resources available from only one source of funding. A "single best estimate" or a "most probable cost" represents only one point on the distribution of possible cost outcomes. Moreover, the government would not have achieved "realistic" pricing when, after creating the initial estimate, it then receives a proposal which indicates the contractor is contributing additional financial resources not reflected

in the initial government estimate. Instead, the result of "realistic" pricing is the range of all financial resources which may be necessary to satisfy contractual obligations with their probability of occurrence.

An analysis whose product is "realistic" pricing as described above can achieve the purposes of the legislation. Limiting the application of fixed-price contracts to those development programs whose detailed definition provides a solid basis for estimating the possible financial outcomes would reduce the frequency of using this type of contract. As the frequency is reduced, Congress would achieve more flexibility in a declining budgetary environment. Congress could then achieve its purpose of choosing the composition of military goods and services based on budget limitations and relative program and military merit, rather than on the requirement to satisfy an obligation that exists because of a particular type of contractual arrangement. Moreover, with an accurate estimate of the range of financial outcomes, contractors would not have to carry the financial liability that could result from a rigid pricing structure in which the risks are not clearly defined or the possible financial outcomes estimated with a high degree of accuracy. Instead, the existence of an accurate estimate presumes that the risks and associated financial outcomes have been defined. With this definition, government and industry managers have an informational basis to create a pricing structure that would provide for the variety of possible financial outcomes. This provision would indicate that the selected contract structure was compatible with the nature of the particular development effort.

Investigative Question #3.

Having generated a range of possible financial outcomes with their associated probabilities, the next task is to determine an "equitable and sensible" allocation of risk. As discussed in the literature review, the basic risk is financial and the issue is who will bear the added financial impact of a future event. The allocation of risk in a contract, then, is the plan for how the burden of various financial outcomes will be shared. An "equitable and sensible" allocation of risk is a sharing of the burden of different financial outcomes in such a way that a very high percentage of the possible financial outcomes should be less than the government's maximum financial liability. Risk Assessment Techniques, published by the Defense Systems Management College, has an illustration of an 85% or better as a very high percentage. The maximum government liability must be high enough that the contractor's financial losses are extremely small and infrequent.

An "equitable and sensible" allocation of risk is not the MPC; for there are other, greater dollar value financial outcomes whose probabilities of occurrence are such that the contractor could easily suffer financial loss. Nor should this particular kind of risk allocation necessarily result in a contractor proposal to share development costs. This is especially true if the only benefit the contractor receives is represented by the solicitation's funding profile, based on a government cost estimate derived from the FYDP, which may or may not be adequate to cover the effort in the statement of work, specifications, and data lists. Finally, this risk allocation is not "equitable" and "sensible" when the government's maximum liability is on a widely dispersed range of outcomes. The wide dispersion suggests that a large government investment is needed to

cover a contractor's total financial liability, when, in fact, the final outcome of a cost-reimbursable type contract might yield a lower government investment. A risk allocation is both "equitable" and "sensible" when the financial outcome which is the government's maximum financial liability is on a narrow range of outcomes.

An allocation that is "equitable" and "sensible" as described above can achieve the purposes of the legislation. This limitation would apply fixed-price contracts to a small subset of all development programs. As the frequency is reduced, Congress would achieve more flexibility in a declining budgetary environment. Congress could then achieve its purpose of choosing the composition of military goods and services based on budget limitations and relative program and military merit, rather than on the requirement to satisfy an obligation that exists because of a particular type of contractual arrangement. Moreover, the government's willingness to carry the burden of risk so that a very high percentage of possible financial outcomes are less than the government's maximum financial liability presumes that the work is defined and risks are truly reduced to the point that the outcomes for the residual risk are limited. With this definition, government and industry managers have an informational basis to create a pricing structure that would provide for the variety of possible financial outcomes. This provision would indicate that the selected contract structure was compatible with the nature of the particular development effort.

Recommendations

The military departments should forgo the addition of further restrictive language whose effect is to increase the number of fixed-

price type development contracts subject to review by higher headquarters. Instead, the military departments should rely on the two criteria of realistic pricing and allocation of risk which have been a part of every text of the legislation in this thesis and have never changed throughout any sequence of textual evolution. The military departments should use the definitions given in the conclusions for investigative questions #2 and #3 as the basis of a prescriptive approach for field activities to follow when approval is required to award a fixed-price type development contract in accordance with existing regulations and statutes. This approach would require field procurement activities to provide the range of possible financial outcomes for the instant procurement with the probability associated with each outcome. This approach would also require the procurement activities to justify the particular point on this range for the maximum government liability. Such a prescriptive approach would help ensure that the type of contract selected would be compatible with the particular development effort.

Suggestions for Further Research

1. The first area of suggested research would examine the dynamics of the process which created the FY 1989 authorization and appropriation statutes for DoD. As a starting point, this research would seek to explain the acceptance of section 8085, P.L. 100-463 by the House and Senate conferees for the FY 1989 DoD Appropriations Act when the SAC, and the Senate as a whole, had earlier rejected this legislation. The research would then seek to explain why the conferees accepted section 8085 at the same time the House and Senate conferees for the FY 1989 DoD Authorization Act accepted section 807 of

P.L. 100-456. The case study methodology would consist of interviewing congressional staff members who had participated in the process of enacting the FY 1989 legislation for fixed-price development contracts. The findings would provide insights into the influences at work in the enactment process which produced overlapping legislative remedies.

2. The outcome of the second suggested research effort would be a software package, compatible with International Business Machines (IBM) personal computers, which would provide a cumulative frequency distribution of program costs. This package would be analogous to the Defense System Management College Competition Model which uses inputs for projected unit quantities and prices, performance curves, shifts, and rotations to determine the cost savings of a particular program's competitive strategy. This program cost distribution software package would prompt the analyst for certain inputs, on the basis of which a distribution of financial outcomes would be calculated. The program's output should label and list all inputs and also provide the resulting financial distribution in a format which would be suitable as an attachment to a request for approval to use a fixed-price type development contract. The program should also have the capability to do a sensitivity analysis which would show how the financial distribution varies as the input values change. The output of the analysis would be a series of graphs which shows the financial distribution change as a function of varying a particular parameter from an optimistic to a "worst-case" outcome. These graphs should also be in a format which would be suitable as an attachment to a request for approval to use a fixed-price type development contract. This software package could be distributed throughout the program offices of

DoD's acquisition community for use on IBM computers as a tool for improved acquisition management.

3. After several years have passed, during which the results of this legislation would spread throughout DoD's acquisition community, the third research effort would measure the extent to which DoD no longer uses fixed-price type development contracts. The methodology would take the form of a series of hypothesis tests using data from the DD-Form-1279 database. The findings would show whether there was a statistical significance in the differences between the number of fixed-price contracts awarded by each of the military departments after enactment of the legislation and the numbers of these contracts awarded during the period prior to enactment of the legislation. Using these findings, a researcher could do a number of comparisons between the outcomes for the military departments and the DoD-wide "average" outcome as well as examine the length of time which had to pass after enactment before statistically significant results were achieved.

In conclusion, the topic of fixed-price development contracts is receiving a great deal of attention at the highest levels of government. However, a need exists to provide clarifications to the acquisition community which give direction to its personnel for implementing the desires and hopes of Congress. To help satisfy this need, this study represents an effort to integrate the literature on fixed-price type contracts, the legislative histories of statutory requirements from the 100th Congress, and the discipline of statutory interpretation. The results of this integration are recommendations for the desired level of flexibility at which future DoD policy and regulatory guidance should operate and definitions for key terms in the

two criteria of realistic pricing and allocation of risk. These criteria are the statutory basis for the use of any fixed-price type development contract.

This study was the initial exploration into the total field of research possible for implementation of statutory provisions on fixed-price type development contracts. To provide the basis for further research, this study concentrated on amassing the information from existing literature and legislative histories. From the information and analytical methods resulted initial concepts, expressed as suggested regulatory flexibility and definitions, which others may follow. Future research objectives, with other appropriate sources of information and methods for analysis, may now emerge from this foundation. The writer hopes this undertaking provides DoD's acquisition community with insights into a significant and timely topic, the procurement approach by which DoD develops weapon systems for America's military force structure.

Appendix A: Testimony on Fixed-Price Type Contracts
for Weapon System Development from Hearings on
the Fiscal Year 1988 Department of Defense Appropriations Act

As part of evaluating the FY 1988 DoD budget proposal, the HAC's Subcommittee on the Department of Defense held 40 days of hearings, intermittently from 4 February 1987 through 15 July 1987 (193:4). The transcript consists of 5,200 pages, of which 900 pages were not printed because of security classification reasons (193:4). The published record of these hearings is in seven volumes consisting of 7,100 pages (193:4).

This appendix presents all testimony from this record related to using fixed-price type contracts for weapon system development programs. The hearings, during which this testimony from senior DoD civilian and military officials was given, took place on 24 February 1987, 18 March 1987, 19 March 1987, and 27 April 1987. Portions of this testimony are in the third chapter of this thesis and are examined there as part of the analysis of the sources of legislative history. This appendix presents all testimony as background information for the subject of this thesis and the interest of the reader.

Tuesday, 24 February 1987

The hearing for the FY 1988 DoD posture took place on this day. The witnesses were the Honorable John Lehman, Secretary of the Navy (SECNAV); Admiral Carlisle A. H. Trost, Chief of Naval Operations; and, General Paul X. Kelley, Commandant, United States Marine Corps (USMC) (197:237). All three witnesses provided prepared statements for

the record (197:237). In his prepared statement, Secretary Lehman described the efforts to make a 600-ship Navy affordable.

Management Initiatives. Those who look pessimistically at the costs of sustaining our Navy assume that because the bloated, inefficient, bureaucratized, over-centralized congressional-executive Defense system has evolved for some 30 years that it will remain forever. We do not accept that. Moreover, under Secretary Weinberger's leadership we have shown in the Navy a historic reversal of the trend of inevitable cost increases...The Congress should take special note of the fundamental changes made in the management of the Department of the Navy. The changes reflect the fact that the Navy Department had already instituted reforms to improve the way we do business, well in advance of the hue and cry for defense reform. They show that we have introduced real and effective measures to exact and impose competition, discipline, austerity, and accountability in the management of the Department of the Navy. (197:395-396)

The prepared statement then described several specific disciplines the DoN used to reduce costs, two of which are related to fixed-price contracts.

Gold Plating Control. Without question, competition and fixed-price contracts are the formula for reducing costs in major procurement. But they can also be a formula for disaster, litigation, and claims, if a military service does not discipline its tendency to gold plate and to increase and change requirements during contract execution. We in the Navy have applied a new asceticism to our gold-plating lusts. Gold plating is now under firm control. An Air Characteristics Improvement Board and a Ship's Characteristics Improvement Board have now been established to control design and equipment changes in production of aircraft and ships. An Electronics Characteristic Improvement Board will be instituted this year to apply the same principle in the areas of command, control, communications, and intelligence systems. This has proved to be a very effective obstacle to gold plating and will carry into force our "Block Upgrade" policy. Under this policy, necessary changes and modernization in design after approval by the Secretary of the Navy are made only with new annual contracts and are priced and negotiated at that time rather than piecemeal in the middle of production runs. Very substantial savings have resulted from this procedure. No contract or engineering changes may be submitted for negotiation without the approving signature of the Commandant of the Marine Corps or the Chief of Naval Operations and the Secretary of the Navy...

Contract Discipline, Accountability, and Quality Assurance. We have moved from a policy of treating cost-plus contracts as normal to treating them as being only acceptable as an absolute last resort for very high risk programs. Our policy now requires more equitable risk-sharing between the government and its contractors, providing increased incentives for excellent performance and immediate contractor penalties for poor performance. We have put all of our aircraft procurement programs on firm-fixed-price type contracts and all of our ships on fixed-price incentive contracts, most with a 50/50 share line above and below the contract price. We have renegotiated contracts inherited from prior years to eliminate the more lenient terms on such programs as TOMAHAWK, TRIDENT, and the LOS ANGELES-Class submarine. We now provide our contractors with the opportunity to make more profit than heretofore allowable, by achieving performance that nets the taxpayer a substantially lower price. The corollary is that we require the contractor to bear immediately the cost of poor performance. Industry had responded at first with reluctance and now mild enthusiasm. The four most recent TRIDENT submarines were delivered to the Navy four to seven weeks early. THEODORE ROOSEVELT (CVN 71) was recently commissioned 16 months ahead of schedule and under budget, and the TRIDENT submarine, NEVADA, was recently delivered three months early. (197:398-399)

After submitting their prepared statements for the record, each witness summarized his prepared statement for the Subcommittee and then answered questions from each Subcommittee member. No one discussed the use of fixed-price contracts for weapon system development during this time. At the conclusion of the hearing, the Subcommittee provided questions for the record. Among these were eleven questions related to the use of fixed-price contracts for weapon system development

QUESTION. Several major programs, most of which are fixed price contracts, are facing, or have faced, major cost problems, and someone will be responsible for paying these bills. For example:

MK-50 Torpedo--The Should Cost ceiling established for FSD has been exceeded by \$81 million, and previously scheduled FSD work has been deferred to procurement.

F-14D Upgrade--Delivery delays and cost problems have been reported by the Navy to this Committee.

MK-48 ADCAP--Has had severe schedule slippages, and major cost problems.

Special Warfare Craft--\$15 million was appropriated, an uncompleted craft was delivered, and the contractor went bankrupt.

MSH Minesweeper--This was a fixed price contract, no ships were delivered, and the program was canceled.

Vertical Launch/ASROC--Currently, this program is a year behind schedule and additional R&D funding is required.

I know these are only a few of the many Navy programs, but what is the Navy doing to protect itself from major funding problems and the potential for large claims in the future?

ANSWER. We protect ourselves by requiring our contractor to perform to the contract. Knowing that they will have to perform to the contract serves as an incentive for contractors not to propose a contract that will cause them financial difficulties. Navy policy is not to proceed with full scale engineering development until advanced development has reduced risks sufficiently to enable the contractor to commit to a fixed price type contract that includes not-to-exceed (NTE) prices or priced production options. The fixed price contract may include incentives on cost, performance, or other factors, but will contain a firm upper limit, such as a ceiling price, on the amount of Government liability that will be incurred. The contract price normally includes as expected an expected margin for changes during development. No matter how stable we believe our requirements to be, there will always be changes that occur when we are on the leading edge of technology. Regardless of the type of contract used, there are many unforeseen factors which may give rise to increased contract costs. By providing incentive share lines, a contractor can gain financial reward if he manages the program below cost commitments. By the same token, he is penalized if he exceeds his estimated cost commitments.

By maintaining reserves and applying our share of savings from successful contractors to those overruns by unsuccessful contractors we provide a measure of protection against funding problems.

It is our obligation to represent the interests of the taxpayers by requiring contractors to manage programs to meet cost commitments they make in their contracts, reward them if they succeed, and penalize them if they fail to perform successfully.

Overall, competition and fixed price contracts have been instrumental in saving the taxpayers billions of dollars in shipbuilding. Over the long term, those firms that can be successful in a competitive, fixed price environment will be stronger through management commitment to cost control. (197:328-329)

QUESTION. Mr. Secretary, a recent Navy report to Congress stated that "systems will not be permitted to enter the FSED [full-scale engineering development] phase until the Navy is satisfied that risks are manageable."

Does the Navy have a standard methodology for assessing development risk?

ANSWER. The Navy carefully monitors all acquisition programs through all phases of development and production. The Acquisition Plans of all major programs are reviewed by the Office of the Secretary of the Navy to insure that at all points of the acquisition process, optimal acquisition policies are being used. Furthermore, all major programs are formally reviewed using Navy Program Decision Meetings (NPDM) at each acquisition milestone--i.e., program initiation, full scale engineering development, and production--to insure that risk has been adequately reduced to proceed to the next phase. The methodology used for risk assessment on the V-22 program is a good example of how the program managers of major programs make their own assessments of risk in order to recommend appropriate acquisition strategies and to make recommendations to the NPDM. Prior to approval to enter FSED, a preliminary design phase was conducted on the V-22 to assess the feasibility of existing tilt-rotor technology and, once the feasibility was demonstrated, to reduce risk for the FSED program. The preliminary design phase resulted in proof of concept, detail design of long-lead subsystems, and technical verification. Over twenty tradeoff analyses had been conducted early in preliminary design. More than 7,000 hours of wind tunnel testing yielded data on configuration, drag, rotor effects, aeroelastic boundaries, methods validation, spin, stability, and engine nacelle airflow characteristics. Critical structural and full scale component testing (such as spindle and wing torque box) has also been conducted. In addition, a detailed risk assessment on the V-22 was conducted by NAVAIR [Naval Air Systems Command] technical experts during the period from 1 February through 29 March 1985. This assessment reflected technical judgments and considered the FSED proposals, inherent aircraft system design and development problems, "lessons learned" from past aircraft developments and fleet experience, analyses and data available from preliminary design risk reduction efforts, and Bell-Boeing's historical performance. Since approval to enter into FSED, ongoing V-22 risk management efforts combine quantitative methods to identify, assess, and monitor risks associated with this program. The V-22 risk management program addresses and coordinates the specific activities of the government, airframe and engine contractors in support of FSED. Areas monitored by this methodology include cost (obligation and expenditures rates, cost performance data analyses); schedule, procurement and delivery status of government furnished equipment; technical; and management functional areas. (197:329)

QUESTION. Is there some threshold which determines how much risk is "manageable"?

ANSWER. No. The assessment of how much risk is manageable is made on an individual basis, program by program, considering the requirement for the system, the technologies involved, and the program structure. (197:330)

QUESTION. This report further states that fixed-priced R&D contracts "limit the Navy's total cost exposure." This assumes, of course, that the Navy holds the line on engineering change proposals and other scope increases which would raise that cost.

Would you state the level of cost savings in RDT&E which can be specifically attributed to fixed price contracting?

ANSWER. Our acquisition policy has fostered more detailed negotiations between Navy program managers, contracting officers and industry. Fixed price contracts, by their nature, require more definitive negotiations of the statement of work prior to signature on the bottom line. Once we have arrived at that bottom line, however, it is difficult to say exactly how many dollars were negotiated due to contract type, or other parts of our acquisition policy such as specification streamlining, competition, or requirements/cost tradeoffs. This policy was targeted toward ensuring risk was reduced prior to Full-Scale Engineering Development (FSED), and changing the environment of sole source contractors that were overrunning multi-million dollar cost-plus contracts. This policy puts risk reduction and cost control at the top of the contractor's priorities. It is likely that the use of cost contracts for these efforts would have meant higher costs for taxpayers to bear. (197:330)

QUESTION. The A-6F and F-14D are being developed under fixed-price contracts and in both cases cost estimates are rising dramatically, and schedules slipping. Can you assure this Committee that the original not-to-exceed prices for these programs will not be breached?

ANSWER. It is difficult to make an absolute assurance such as that since there are always unknown factors that could affect any contract. For example, if funding were cut, the schedule may have to slip and the not-to-exceed price may have to be renegotiated. In the case of the F-14D, it appears that the Government was not able to furnish required Government-furnished property on schedule. If the Government is not able to meet its contractual commitments, the contractor may submit a claim that is then negotiated between the parties. We have learned from this experience, and now are relying on contractor-furnished, rather than Government furnished, property whenever possible. An increase or change in the scope of the program may also cause a change in the not-to-exceed amount. We are controlling these changes via SECNAV-approval of any such changes that will result in a cost increase. In addition, we are attempting to control cost/schedule increases by more definitive negotiations and reduction of program risk prior to signing up for a fixed price, not-to-exceed, or capped program. (197:330)

QUESTION. Mr. Secretary, you will remember the Navy's JTIDS [Joint Tactical Information Distribution System] program. This was a capped program, essentially fixed-price, where at a point in time the contractor's estimated overrun was more than he was willing to assume, and the

program was terminated. From this experience, can we assume that fixed price contracting does not by itself erase development risk? Doesn't it instead transfer risk management out of government hands?

ANSWER. It is probably true that it is never possible to completely "earse" [sic] development risk; however, we are lowering that risk to an acceptable level prior to entering into fixed price contracts. As I have mentioned earlier, our fixed price contracts are preceded by more definitive negotiations of the statement of work. This creates a better defined FSED contract where the responsibilities of both sides, contractor and Navy, are fully understood. The risk of cost overruns is indeed transferred to the contractor in a fixed price contract. If the risk is too high for contractors to sign a fixed price contract for FSED, however, the program is kept in advance development until the risk has been reduced to an acceptable level. This method, we believe, will help to prevent contractors getting into situations where they will not succeed in the performance of a fixed price or capped program to such an extent that we might be forced to terminate. (197:331)

QUESTION. The Federal Acquisition Regulations (FAR), which provide procurement policies for all of DOD, state that cost-type contracts are preferred for FSD. The Navy's policy therefore appears to be in direct violation of the FAR. Is this so, and if so, why?

ANSWER. While the Defense Federal Acquisition Regulation Supplement (DFARS) states that cost reimbursement type contracts are preferred, it also provides that fixed price contracts should be used when the risk has been reduced to the extent that realistic pricing can occur. Also, the Federal Acquisition Regulation (FAR) provides that cost reimbursement contracts are suitable for use only when the uncertainties [sic] involved in contract performance do not permit costs to fixed-price [sic] contract.

Our policy is that we will not proceed with full scale engineering development until we're satisfied that the advanced development effort has reduced risks sufficiently to enable contractors to commit to a fixed price type contract. This policy is consistent with the FAR/DFARS... (197:331)

QUESTION. Mr. Secretary, the Committee is advised that technical problems in developing both the A-6F and F-14D are expected to delay first flight by 3-10 months for these aircraft. It is estimated that these problems may cost Grumman and/or the Navy between \$150 and \$300 million to resolve, and may result in litigation. What is the current estimate of schedule slippage and program cost growth?

ANSWER. A-6F: Grumman has proposed a three month slip in first flight of the number one Full Scale Development (FSD) aircraft. NAVAIR has not yet accepted this slip and has challenged Grumman to present a recovery plan to return the FSD flight test program to its original schedule. No slip

in production aircraft delivery or in initial operational capability is anticipated or proposed at this time. There has been no cost growth in the A-6F development program.

F-14D: First flight of the F-110 engine test aircraft was in September 1986. The original schedule was August 1986. The first avionics aircraft previously was scheduled to fly August 1987, but now will fly in November 1987 to fully check out the aircraft and in January 1988 to start avionics software development flight testing. OPEVAL [operational evaluation] will commence in May 1990 as previously scheduled, and the delivery of the first production F-14D in March 1990 remains unchanged. Maximum government liability will be limited to \$100 million over the current contract price and the current Firm Fixed Price (FFP) contract will be converted to a fixed-price incentive contract where cost in excess of the current contract price are shared 50/50 up to the ceiling. Additional funding will be required in FY 89/90; however, the exact amount of additional funding required will not be known until Grumman submits its proposal (due not later than 12 May 1987) and the Navy audits and negotiates the equitable adjustment. (197:334)

QUESTION. How much has Grumman invested to date?

ANSWER. A-6F: Since there has been no cost growth in the A-6F development program, there has been no requirement for either Grumman or the Navy to make any investments over the original contract value.

F-14D: Since signing the F-14D Full Scale Development (FSD) contract on 31 July 1984, Grumman has received progress payments against all of the costs they have incurred on the F-14D FSD program. (197:334-335)

QUESTION. According to the Navy, deficient government furnished equipment was provided to Grumman to integrate into the F-14D. This GFE [government furnished equipment] was the Navy's responsibility. Yet Navy [sic] apparently expects Grumman to pay costs associated with this problem. Is this accurate? If not, explain why not. Does Navy [sic] expect litigation over this issue?

ANSWER. The Navy fully intends to pay costs associated with late and/or defective GFE for which it is responsible. During December 1986 and January 1987, NAVAIR analyzed the Grumman cost data to determine realistic projected cost growth, cause, and responsibility. Both the contractor and Government share responsibility for the cost growth. Analysis indicated that the project cost growth:

Resulted partially from specification interpretation differences between NAVAIR and Grumman.

Was partially caused by late/defective GFE and/or scope changes (i.e. AYK-14 computer/conversion to USAF JTIDS).

The Navy does not expect litigation over this issue. Cooperative NAVAIR/Grumman efforts during January and February have resulted in the following:

Restructured and/or redefined various aspects of FSD to reduce cost without impacting warfighting capability of the F-14D.

Projected cost growth reduced more than 60 percent.

Understanding has been reached with Grumman as to how to reach a resolution to the responsibility for the remaining cost growth without the need for filing a claim. This understanding limits the maximum Government liability of \$100 million over the current contract price and contemplates converting the current FFP contract to a fixed-price incentive contract where costs in excess of the current contract price are shared 50/50.

A formal proposal with certified cost and pricing data and assessment of legal responsibility for costs must be submitted by Grumman and audited by the Navy prior to taking any contractual action.

These agreements are the result of intensive discussion and provide a fair, proper, and positive outcome. (197:335)

QUESTION. In retrospect, do you believe that technical risk was reduced to a "manageable" level for these programs prior to signing fixed-price contracts for FSD?

ANSWER. A-6F: Yes. The Navy is making maximum use of common-off-the-shelf systems in order to reduce the development risk for the A-6F.

F-14D: Yes. The technical risk was reduced to a manageable level. Prior to signing the F-14D FSD contract, numerous risk reduction actions were completed such as flying an early derivative of the GE [General Electric] F-110 engines in the F-14, flying a digitized version of the AWG-9 radar weapon system in the F-14, using extensive commonality with F/A-18 avionics hardware, and designing a high degree of commonality into the F-14/APG-71 radar with the USAF F-15/APG-70 radar which was two years ahead of the F-14D in its development. (197:335-336)

Wednesday, 18 March 1987

The hearing for the National Aero Space Plane (NASP) program took place on this day. The DoD witnesses were Dr Robert Duncan, Director of the Defense Advanced Research Projects Agency (DARPA); Brigadier General Robert Rankine, Director of the Air Force Space Program; Dr Raymond Colladay, Associate Administrator, Office of Aeronautics and Space Technology, National Aeronautics and Space Administration (NASA); and, Colonel Leonard Vernamonti, Director for Air Force and Strategic Defense Initiative Organization, NASP Program Management Office

(198:171). Dr Duncan was the first witness to testify (198:171). He provided a prepared statement to be placed in the record and summarized that statement in a briefing for the Subcommittee (198:171-193). Very early in the briefing, Dr Duncan gave the goals of the NASP program.

The goals of the program are to provide the foundation of future supersonic flight. The critical design sensitivities are part of the risk assessment. This a high-risk program, but a program in which we have tried to organize the agencies involved and the program itself so as to manage that high-risk in a smart way. (198:172)

After Dr Duncan finished his briefing, two other witnesses, General Rankine and Dr Colladay, also provided summary statements (198:198-210). There followed a question and answer period, in which Mr Chappell, the chairman of the Subcommittee, asked about the use of fixed-price contracts for the NASP.

MR. CHAPPELL. This is a high risk program. Are fixed-price contracts applicable here?

DR. DUNCAN. Yes, we have fixed-price contracts and the purpose of that is to assure that--and this is supported by the contractors involved. We are at a stage in the program where we are not bending a lot of metal at this stage of the game.

They are using their heads, and the computer, and they are using the most creative engineers in the various organizations. In every case, the program management office within the contractors have set up management structures that report right to the top of the company. They support the fixed-price contracts and we have negotiated fixed-price contracts. They are putting in in total one for one for what the Government is putting in because they realize the importance to the future of the technology that their field is, their business is in. (198:215)

Thursday, 19 March 87

The next morning the Subcommittee heard testimony from senior Navy acquisition officials on the DoN RDT&E budget request. The DoN witnesses were Mr Richard Rumpf, Principal Deputy Assistant Secretary of the Navy for Research, Engineering, and Systems; Vice-Admiral Paul McCarthy, Director of Research, Development, and Acquisition; Major

General Raymond Franklin, Deputy Chief of Staff, Research, Development, and Studies, USMC; and, Rear Admiral Peter DeMayo, Assistant Commander for Contracts, Naval Air Systems Command (198:387). Mr Rumph was the first witness to testify (198:387). He provided his prepared statement for the record and then gave the Subcommittee an overview of the statement's content (198:387-389). During this overview, he briefly described the contribution and influence of Mr Melvin Paisley, the former Assistant Secretary of the Navy for Research Engineering and Systems, on the DoN RDT&E budget and the benefits of Mr Paisley's policies on cost risk and control.

Mr. Paisley's influence has led to efficiencies in contracting, transfer of cost risk from government to industry and full competition from R&D through procurement.

These initiatives are leading toward fulfillment of one important initiative--the full funding of R&D programs.

With the fixed price-type contracting that we are putting into place in major programs, and the fact that we and the contractors are being disciplined by the approach that we are taking to cost control, we believe that we are able to avoid cost overruns which we have seen in the past using cost-plus type contracts. We end up with a more efficient and cost-effective way of doing research and development. This is because the risk is assessed to be moderate to low when we enter into fixed price type contracts. (198:388-389)

In the prepared statement submitted for the record, the DoN further explained the refinements to its acquisition policy which made the R&D initiatives and programs more affordable (198:407). One of these refinements was the use of fixed-price development contracts (198:407). The DoN explained the benefits of this policy.

It is noteworthy that our acquisition policy has fostered more detailed negotiations between Navy program managers, contracting officers, and industry. Fixed price contracts, by their nature, require more definitive negotiations of the statement of work prior to signature on the bottom line. These negotiations are leading to better defined FSED contracts, where the responsibilities of both sides, contractor and Navy, are fully understood. If the risk is too high for contractors to sign a fixed price contract for FSED, the program is kept in advanced development until the risk

has been reduced to an acceptable level. However, if the operational requirement for a system is urgent, we proceed with FSED and sign a fixed price contract at critical design review. (198:407)

In the prepared statement, the DoN pointed out that the other military departments were following its acquisition policy of using fixed-price contracts for engineering development.

Both the LHX [light helicopter experimental] and ATF [advanced tactical fighter] have opted for creative use of fixed price contracts in development. The Air Force is using fixed price in FSED where appropriate in proportion to the risk on its ATF. For the LHX, the Army has implemented a phased approach to the use of fixed price, from concept exploration through production. Each phase is fixed price and includes options with fixed prices or cost guarantees. (198:408)

The DoN compared its acquisition policies with those used by industry and recommended by the Packard Commission.

Our primary instruction on acquisition policy, SECNAVINST [Secretary of the Navy Instruction] 4210.6, sets forth an approach to acquiring products for the Navy that is quite similar to the way private industry operates--a philosophy which pervades the Packard Commission recommendations. We are insuring that competition is available through dual or multiple sources; we are capping prices by negotiating on fixed price or not-to-exceed price bases; and we are expecting industry to invest in production tooling and test equipment. While we are striving to emulate practices which are common in industry, our policy is also sensitive to the differences between commercial and defense business. (198:409)

The DoN then described how it applied the acquisition policy to specific programs, the first of which was anti-submarine warfare systems.

An innovative acquisition strategy for our new SSN-21 attack submarine has increased competition, reduced cost, reduced risk, and maximized the industrial base...By undergoing a more stringent and longer design process and by the use of maximum prototyping, risk has been substantially reduced such that we achieve a fixed price contract for ship detailed design. With this acquisition strategy, we plan to avoid the cost overruns and delays that initially marred the SSN-688 Class Construction Program. (198:413)

The DoN offered the V-22 as the best example of applying acquisition policies to a specific program (198:422). Part of the V-22's acquisition strategy was to use fixed-price contracts for development of the airframe and engine (198:422). The DoN also stated that the Consolidated Automated Support System used fixed-price type contracts for both pre-development as well as development (198:422-423). The final reference in the prepared statement to using fixed-price development contracts was in discussions about electronic warfare programs, in which the DoN used this contract type to reduce development costs (198:431).

The Subcommittee then received summary statements from Admiral McCarthy and General Franklin. After these two witnesses finished their presentation, Mr Chappell began the question and answer period by asking about the DoN's RDT&E acquisition policy and the total package procurement (TPP) concept.

MR. CHAPPELL. Mr Rumpf, what is TPP, or "total package procurement"?

MR. RUMPH. A total package procurement contract is one in which there is a single package which includes the procurement of the related design development [sic], total production, and support for an article.

It was a winner-take-all, one-time competition to bring all of that to bear with not having the capability to examine the scope of reduction in specifics or relationship to the risk of the program. We have changed in the policy that we have. It is not a total package procurement-type of policy.

MR. CHAPPELL. Was that program, in the mind of the Navy thinkers and planners, not an effective program?

MR. RUMPH. That is correct, sir.

MR. CHAPPELL. Why was it not effective?

MR. RUMPH. It [the TPP concept]...had the fallacy of tying the whole package together. We now have the flexibility not to do this in the sense that when we go out on a R&D contract now and assess that it is a medium to low risk and the contractor, likewise, assesses the risk to be the same and signs up to a fixed-price contract at that point in time, we exact from him a cost cap...It is a fixed-price development contract, but it is not tied to a fixed price then that carries all the way through procurement and for support as the total package procurement approach did. (198:445-446)

Mr. Chappell then asked about the amount of flexibility the DoN's RDT&E contract policy gave industry.

MR. CHAPPELL. Does this method, the policy which you now have in RDT&E contracts, give the contractors a broader or a more limited area of bidding on performance of missions?

MR. RUMPH. We give them a broader area because we specify in the streamlining of the way we are doing business more performance related goals and thresholds to reach. This gives him the flexibility to meet those performance related activities and reduces the number of contract line item Contract Data Requirements List (CDRLs) that have in the past been a burdensome problem and in some cases we paid for a lot of paper which we haven't really used.

We make the contractor warrant the product that comes out. So, if he meets the performance based on his activity underneath that cap, then we allow him the flexibility to do that. It is much more flexible for the contractor.

MR. CHAPPELL. Are you putting more or less responsibility on the contractor?

MR. RUMPH. We are putting more on the contractor, sir, absolutely.

MR. CHAPPELL. Are you insisting more on specifications as to parts and kinds of materials that you use, or are you leaving more of that option to the contractor under a performance contract?

Mr. RUMPH. The latter is what we are doing. We are giving them much more flexibility. (198:446-447)

There followed a discussion in which the DoN's acquisition strategy was compared to multiyear procurement, during which Mr Chappell asked about industry's obligations under a fixed-price contract with performance requirements.

MR. CHAPPELL. Can you adequately get industry to bid on R&D projects on a performance requirement? We are plowing new ground. There are many unknowns out there. Suppose they bid and they have contracted to a set of requirements on performance and they don't meet that? Do they get paid?

MR. RUMPH. If they don't meet the requirements, they don't get paid.

MR. CHAPPELL. And that is part of your--

MR. RUMPH. That is the penalty that is imposed under this arrangement. (198:447)

Mr Chappell then asked about industry's response to these initiatives.

MR. CHAPPELL. Okay. What does industry think about your present policy?

MR. RUMPH. ...Industry originally balked on the approach...We were assuming more of the risk under the old way of doing business and new [sic] we have levied the risk down...We have found that the contractors balked at first, and some are still balking, but over the course of time the bulk have accepted this way of doing business and through their boards of directors have planned on the type of investments necessary to do business the way we have asked them to do business. (198:447-448)

Mr Chappell asked about the latitude this approach allowed the contractors.

MR. CHAPPELL. Does this give them more latitude in exercising initiative or less than the old way?

MR. RUMPH. ...They have a lot of latitude to meet that performance baseline, assuming that they don't jump out of line on some large issue that we have in the specification...

But we have given them more flexibility under this performance-related type of contracting approach than they have had in the past with specific items to deal with.

So we feel they are amenable and they like the ingenuity that they can add to this concept. Because we have bound the problem with a fixed price and the performance guarantee that he has to bring forward, we have kept his engineers and ours from tinkering with the system....

So we have put a discipline to ourselves and the contractor.

MR. CHAPPELL. Have we had a lot of savings from it?

MR. RUMPH. We believe that we have; yes, sir. (198:448)

Mr Chappell inquired how this acquisition policy conformed to procurement regulations.

MR. CHAPPELL. Are you in violation in any way with the FAR Regulations?

MR. RUMPH. No, sir. I would like to quote some sections from the FAR to you because I think this is directly applicable here. This is from FAR 16.103, "Negotiating Contract Type":

(a) Selecting the contract type is generally a matter for negotiation and requires the exercise of sound judgment. Negotiating the contract type and negotiating prices are closely related and should be considered. The objective is to negotiate a contract type and price (or estimated cost and fee) that will result in reasonable contractor risk and provide the contractor with the greatest incentive for efficient and economical performance.

(b) A firm-fixed-price contract, which best utilizes the basic profit motive of business enterprise, shall be used when the risk involved is minimal or can be predicted with an acceptable degree of certainty. However, when a reasonable basis for firm pricing does not exist, other contract types

should be considered, and negotiations should be directed toward selecting a contract type (or combination of types) that will appropriately tie profit to contractor performance.

[MR. RUMPH.] Let me interject that is exactly what we did on V-22. The risk was initially high in the pre-FSED phase and we had a pre-FSED portion before we bound the program to a \$2.5 billion FSED arrangement; that is, contractor plus government.

We had, where the risk was high, a pre-FSED phase. This was cost plus because the risk was too high to the contractor on that portion of development looking at new composites and for a relatively revolutionary airplane at that time.

We reduced the risk to medium, which we and the DoD assessed to be acceptable and then went forward in the milestone review with OSD and were approved for a FSED fixed-price-type contract.

Let me continue with the FAR--

(c) In the course of an acquisition program, a series of contracts, or a single long-term contract, changing circumstances may make a different contract type appropriate in later periods than that used at the outset. In particular, contracting officers should avoid use of a cost-reimbursement or time-and-materials contract after experience provides a basis for firmer pricing.

[MR. RUMPH.] So we believe that we are not in violation of the FAR, but, in fact, our programs are supported by its tenets.

MR. CHAPPELL. Thank you. Mr. McDade? (198:448-449)

Mr McDade from Pennsylvania, a member of the Subcommittee, questioned the witnesses about a recent congressional study on fixed-price RDT&E contracts.

MR. McDADE. Thank you very much, Mr. Chairman, and thank you, Mr. Rumph, for your testimony.

Let me say as one Member sitting on this side of the table, I am confused. I think you have probably seen an S&I investigation and study. We have one which really is quite critical in many respects to the program that you have just articulated. And they attempt to be point specific. For example, on cost savings, they state that the dollars that are allegedly saved, the billion dollars in cost savings, are primarily the result of descoping requirements and tailoring specifications. Then they give a specific example of the T-45 training system, where they indicate that the contract was scaled down, flying hours were moved back, there was a typographical error, et cetera, et cetera, et cetera, and you know, what I am getting when I listen to your testimony, it sounded very encouraging, but when I read this from our

S&I staff, I am getting a diametrically opposed viewpoint on savings from the policy of the fixed price.

They are saying that really they aren't fixed prices, you have options that you are going to pay and you have indicated that you would pay additional claims as it went along so it isn't really a fixed-price contract.

They say there is very little difference from multiyear, except on a multiyear you have to come here and get approval for it, that you get to a fixed price and what you are doing is putting the marbles on the table and signing up to a contract where we just appropriate the money and lose the ability to try to control the oversight function, which you and I agree is essential to this entire process.

MR. RUMPH. Yes, sir. (198:450)

Mr McDade then quizzed the witnesses at length about the alleged savings for two DoN programs, the T-45 and the V-22.

MR. McDADE. When I read our S&I report and the implications of it and listen to your testimony, I don't see it coming together. In fact, I see, nothing from this Member's perspective, they are diametrically opposed.

For example, what about the example cited of the T-45 Training System? They say the alleged savings resulted from redefinition, a \$60 million typo error, and that the savings are not there. They are specific about it. Do you dispute those statements?

MR. RUMPH. Let me ask Admiral DeMayo, Assistant Commander for Contracts at NAVAIR.

ADMIRAL DeMAYO. I am Rear Admiral Pete DeMayo, Assistant Commander for Contracts at NAVAIR. We will that [sic] there are savings in these development programs because of the efforts resulting from streamlining.

As far as the typographical error goes, we apologize for that and I think a better job of staffing would correct that. We don't want to mislead anybody on the savings issue.

MR. McDADE. I am sure you don't.

ADMIRAL DeMAYO. I think we should all understand what we are dealing with. What we are trying to get at in demonstrating the savings is when you put a contractor in a fixed-price-type mode there is an inherent discipline for him to try and manage to a cost objective.

One example is on the V-22 program, because in that case we took a contract that was originally contemplated on a cost-plus incentive fee [CPIF] basis where the government would be liable for costs up to about \$1.973 billion, and we, because of the risk reduction effort we signed the contractor up to a maximum cost of \$1.810 billion. So clearly the government exposure has been reduced significantly in that particular program.

In addition, we felt that the way this was done the contractor would be more incentivized to manage to the target cost of the program, which is down around \$1.534 billion.

So I think we see an environment, we can't precisely say where it will come out in the end, but clearly he is incentivized to manage his program at a much lower cost.

I think that is where we see the essential ingredients of the savings in these programs.

MR. McDADE. The difficulty I have is that the V-22 was looked at by the S&I staff, too, and they dispute those figures.

ADMIRAL DeMAYO. I understand that.

I think the number they cited was, the \$125 million, as I recall, and I think when we presented our rationale on that, we were looking at what the contractor's proposal was under a fixed-price incentive basis and what we finally tied him down to in terms of ceiling, which the \$125 million, I think, was in constant year dollars and we translated that to \$150 million in then-year dollars.

MR. McDADE. Our S&I report shows the comparison of the V-22 aircraft proposals under cost-plus incentive and under your fixed-price incentive, and we start with the contractor proposal, and the figures show the cost plus a roughly \$1.9 billion and the fixed price at roughly \$2.2 billion. Do you agree with those figures?

ADMIRAL DeMAYO. What I show the proposal at, and we can provide what we have for the record, the CPIF is correct. The FPI proposal was at \$1,960 million. That is what we show...

MR. McDADE. It is showing here at \$2.15 billion, rounded to \$2.2 billion?

Can you explain that difference?

ADMIRAL DeMAYO. No, sir. My numbers show the proposal at \$1,960 million.

MR. McD/DE. These were proposals that you solicited from the contractor under the two various methods?

ADMIRAL DeMAYO. Yes.

MR. McDADE. The price in both cases is higher under the fixed-price incentive than under the cost plus.

ADMIRAL DeMAYO. Yes.

MR. McDADE. Let's go to the negotiated price.

I assume we are talking here about where you went from the proposal, either on cost plus or fixed price; is that correct?

ADMIRAL DeMAYO. That is correct.

MR. McDADE. Once again, according to the figures here, the negotiated price under the V-22 for the contractor was \$1.657 billion, and under the fixed price proposal it was \$1.714 billion, or a plus-up of \$57 million; is that accurate?

ADMIRAL DeMAYO. That is accurate at target, the target under a cost-type contract, and the target cost under a fixed price incentive contract.

What we do in a cost-type contract or in a fixed-price incentive, we establish what we call a target cost. That is based on a reasonable estimate.

You also have to look at what is the maximum cost that the government will pay.

That is another element. That is in the figures.

MR. McDADE. Is it in the \$1.7 billion?

ADMIRAL DeMAYO. The \$1.7 billion, on the FPI that is a target cost including target cost-plus profit, so it is a target price. I agree with that number.

MR. McDADE. And there is no increment above that that you would pay for the aircraft?

ADMIRAL DeMAYO. There is. We have a sharing arrangement that says for above target we will pay a certain amount of the cost, the contractor will absorb a certain amount of the cost increases above the target up to a ceiling of \$1.810 billion. In other words, that is the most the government will pay under this arrangement.

MR. RUMPH. But, there is no ceiling on a cost-plus contract, so the contractor could just keep on going forever with no cap working on that job.

MR. McDADE. The other figure of \$1.6 billion has no cap whatsoever and the distinction is that although this \$1.7 billion is a figure that can plus up to \$1.8 billion, that is the top--

ADMIRAL DeMAYO. That is the top, the maximum government liability, correct.

MR. McDADE. Have the caps been broken in the past?

ADMIRAL DeMAYO. No, sir. If you break that cap, it is on the contractor. He has the full risk of that. This is another distinction. In the cost-type contract, he gives you his best efforts and if he doesn't get to an end objective, you have to provide him more money.

In a fixed-price-type contract, he is signed up to deliver a product and if he can't deliver it at \$1.810 billion, he has to continue to work at his own expense and he bears the full risk of that. (198:450-452)

Mr Efford, a staff assistant, and Mr McDade then questioned the witnesses about situations in which the maximum government liability was revised.

MR. EFFORD. On the F-14D development contract, which is a firm-fixed price contract, the Secretary was here a few weeks ago and discussed that the maximum government liability under that fixed-price contract is being raised. That seems to be a little in conflict with the idea that there is a maximum that in no circumstances can be breached.

ADMIRAL DeMAYO. Well, under government contracts, you can always have a change under the contract. In other words, if we change our requirements then we are required to adjust the contract or if the contractor feels that there are certain government-related responsibilities during performance, then he can submit a claim, we call that a request for equitable adjustment.

In the case of the F-14D, there were certain problems associated with government-furnished equipment in that program and he has come forward to us and said, "I have a claim that I would like to submit." We have spent an

extensive amount of time working with him in terms of the size of that claim and are currently awaiting a proposal.

Yes, that is a way to increase the cost of a contract. It is assigning government responsibility and then we are obligated to pay for that.

MR. McDADE. How many circumstances are there where the fixed price can be broken? You are talking about a claim based on a different spec, a product improvement of some sort, is that what you mean?

ADMIRAL DeMAYO. If we wanted to add more new capability, modify the specification, that would be a reason.

MR. McDADE. We are talking about product improvement.

ADMIRAL DeMAYO. Yes, sir.

MR. McDADE. Would you negotiate that again?

ADMIRAL DeMAYO. Yes, we would say change the contract from this to that and the contractor would give us a proposal and we would negotiate.

MR. McDADE. How would that differ from the normal contracting? When you go through normal contracts, if you want to make a contract change, you do the same thing, don't you?

ADMIRAL DeMAYO. That is the normal process.

MR. McDADE. So there isn't a difference between fixed-price and regular contracts. If there is a modification that might be an improvement, you would change the contract and increase the payments for it, wouldn't you?

MR. RUMPH. Yes sir, but only after you have reached the baseline threshold. We admit we made a mistake on the F-14D because we incorporated some GFE. The Navy didn't place the burden of responsibility on the contractor for government furnished equipment on the computer. The principal reason this contract has to be re-negotiated is because of the timeliness of receiving that article from the subvendor and the subsequent qualification of the computer and writing the software for the computer to integrate it with the rest of the aircraft.

MR. McDADE. You are saying there was a contractual error that made him have a just claim?

MR. RUMPH. Yes.

MR. McDADE. What about the A-6? We read that there is \$100 million for an engineering change, under what was supposed to be a firm-fixed price contract.

MR. RUMPH. No, sir. When we baselined the A-6F--

MR. McDADE. When you say baseline, is that another term for putting in a cap?

MR. RUMPH. It is a combination of putting in a cap relative to the cost and also defining what the specifications for performance will be. That is a baseline.

From that baseline as we got further along and viewed the fact that we wanted to have more survivability in the airplane, we brought in engineering change proposal (ECP) 1, which was supported by Congress last year. Congress gave us flexibility to reprogram FY 1987 resources into the Libyan Lessons Learned Account.

ECP-1 incorporates the night attack capability for increased survivability. These enhancements are to the integrated defense avionics portion of that airplane, and a couple of other items which we discovered were needed for survivability reasons, as that airplane will be in the fleet into the 2000s providing support for our attack mission.

ECP-1 was a bona fide Engineering Change Proposal over and above the original baseline.

So we agreed that the cost cap of \$100 million was not recurring but a product improvement, sir. (198:452-453)

Mr McDade then questioned the witnesses on the effect of the DoN's acquisition policies on congressional oversight.

MR. McDADE. From your side of the table, you make a good case and when I read our S&I report, they make a good case.

One of the things that they talk about is that using this system, the Navy is really making an effort to fully fund these contracts so there can't be investigative oversight on the part of the committee as the contract goes through the process. You are locking the contract in, and our obligation is going to be just the same as if we had approved a multi-year contract, and there really isn't any difference from this side of the table as we try to look at your budget, when you present us with those fixed-price contracts. That is, we pick up the bill and the Navy has their procurement account taken care of, the rest of the budget is still sitting out there with a lot of hard decisions to be made. As you look at where there is flexibility for oversight or trying to cope with difficulties we are going to have in the budget this year, you remove from consideration every fixed price that you have entered into just as if it were a multiyear program.

MR. RUMPH. We protect the fixed-price type contracts. We believe that when the program plan first comes forward and is provided for your oversight it meets the fundamental mission need of the Navy. The military has the obligation to fulfill our treaty obligations using a balanced approach of this type of airplane or that kind of missile system or this piece of hardware at a reasonable fixed price. Once we have properly defined our needs we then have to put the sense of risk into the hands of the contractors.

Once we have done that and have defined the top line on dollars and you have initially agreed to that program as the result of your review and oversight, which is what we need, that brings us to the scenario where we have a good business deal struck and it is prudent for us to protect those contracts internally.

MR. McDADE. What we do when you present us with your budget in R&D, and you show us what you are attempting to do, is approve annually the appropriations to complete the job that you say you are going to get done within a given fiscal year and we only appropriate that amount.

When you go to this fixed-price contract, we can be looking at a definite number of years from R&D through full-scale

engineering through procurement and it is a fixed account then, isn't it?

MR. RUMPH. Yes, sir. As long as that program doesn't run into trouble and completely collapses, and we have not had any experiences where that has happened, we are asking you to do the same as we are doing. That is, once you have given us permission to initiate that program with that type of policy in place then we are looking for your support for fiscal stability in these programs because the one thing that destroys programs most rapidly is when the dollars are not there to meet the obligation that the contractor has to deliver a product on time.

MR. McDADE. That is what we are facing, the allocation of dollars and the more the budget gets locked in in a procurement cycle, the fewer dollars there are to look at the rest of the budget.

It seems we are going to have to devise some kind of a system to talk with you about fixed-price contracts either in terms of degree of risk or something before we let you enter into them. Otherwise, the discretion is locked out of them. And we would hope every one of your programs would succeed. That is our mutual goal, but experience teaches us that ain't going to happen. When you try to get to that, you are just-- that is Nirvana, we will never get that.

To try to lock it in multiyear is going to require more fine tuning, it seems to me.

We don't want to manage what you are doing. I want you to keep doing a good job. The difficulty we have on this side is preserving what we are supposed to do with respect to the budget, make difficult decisions about where to allocate dollars and keep programs going. It is a tough problem.

MR. RUMPH. It is a tough problem and we would be glad to enter into dialogue with you on techniques by which we can better serve your interests in addressing those problems with us. We believe it is important that once we have very carefully scrubbed the prioritization of our programs and have said that on the top priority programs we are going to strike the best business deal we can. We then want to put stability in the process to make sure the programs go through R&D and get into the fleet similar to those described earlier today by the Admiral.

We want to do that with a whole series of programs and we need your support to do that and we have a problem here which we need to mutually work on.

MR. McDADE. I appreciate your time. Mr. Chairman, I have used my time. (198:454-455)

After Mr Sabo from Minnesota and Mr Miller from Ohio questioned the witnesses about basic research funding, super computers, exploratory development, and the Naval Airship and CAPTOR mine programs, Mr Chappell then questioned the witnesses at length to

determine the difference between a fixed-price contract and an "unpriced" contract.

MR. CHAPPELL. Mr. Secretary, tell us the legal difference between a non-priced contract and a fixed-price.

MR. RUMPH. Let me ask Admiral DeMayo to give you the specifics on that, sir.

ADMIRAL DeMAYO. An unpriced contract and a fixed-price contract or a definitized contract--the essential difference is that an unpriced contract says that we have not agreed on all the terms and conditions of a contract, but for one reason or another, we want to get--

MR. CHAPPELL. How can you have a contract that you don't agree on all the terms of it? You didn't mean to say that.

ADMIRAL DeMAYO. No. I say for one reason or another, we need to have the contractor start performance, maybe we have an urgent military requirement, we are trying to meet a schedule.

We have vehicles to get the contractor started prior to reaching agreement on all the terms and conditions that we need to reach agreement on.

MR. CHAPPELL. It is an agreement to agree then, right?

ADMIRAL DeMAYO. That is right.

Now, one of the misconceptions on some of these contracts is that there is no incentive for the contractor to control costs, because he is operating without a fully definitized contract.

Actually, what we try to do before we issue an unpriced contract is to agree on as many of the conditions that we can.

In other words, we want to try to nail down the contractor.

For example, in the F-14 contract, which was an undefinitized contract for some time, we had substantial agreement on all the terms and conditions except the final price.

We did not have the supporting justification for the final price, but that contract had a complete spec, it had all the terms--

MR. CHAPPELL. It had all the requirements of performance?

ADMIRAL DeMAYO. Yes, sir.

MR. CHAPPELL. But you hadn't settled on the final price?

ADMIRAL DeMAYO. Yes, sir. As a matter of fact, we have a copy of that contract here if people would like to see one.

MR. CHAPPELL. I would like to see one of them.

ADMIRAL DeMAYO. Commander Sellers please stand. This is the letter contract that we issued in July of 1984.

MR. CHAPPELL. Let us see what you are talking about.

ADMIRAL DeMAYO. That is the letter contract in July of 1984 with a complete spec and Grumman, we have held Grumman to all the terms and conditions that are in this letter contract.

The only thing in this contract that we haven't agreed to was the final contract price because by law we are required to get an audit and we have to go through the analysis of

this cost to make sure that they are all valid and that is the process that we went through.

But we wanted to get the program underway so we have a two-party contract. The contractor has signed this letter contract and he is performing to this contract--he performed to this contract for about two years.

MR. CHAPPELL. Did you agree to pay a reasonable price for it?

ADMIRAL DeMAYO. Yes, sir.

MR. CHAPPELL. How was the reasonable price to be determined?

ADMIRAL DeMAYO. In this case, it was determined by a contractor's proposal which we then turn over to the Defense Contract Audit Agency who conducts an audit and then we sit down with the contractor and negotiate the elements of cost to make sure they are fair and reasonable.

MR. CHAPPELL. Regarding the six major fixed-price contracts last year, there was testimony before the committee that they were protected from Gramm-Rudman reductions. Was that true?

MR. RUMPH. Yes, sir. We protected those contracts so that when the Gramm-Rudman-Hollings reduction came through, we offset the reduction of those contracts to make sure they were not breached.

Furthermore, you gave us internal reprogramming flexibility to do that and we took advantage of that.

MR. CHAPPELL. But our S&I investigators state that two-thirds of those were not fixed price, but they were unpriced contracts. Is that true?

MR. RUMPH. These were in the beginning and in some cases, still the letter contracts that had the not-to-exceed in them, but had not been fully definitized with the final audit and the final agreement. But the top line, the not-to-exceed, was incorporated inside those letter contracts until such time as they were definitized.

MR. CHAPPELL. I guess the thing that is bothering the staff here is that they also have contract savings from these fixed-price contracts, so how can they be fixed?

MR. RUMPH. They are fixed because we know what the ceiling or to [sic] exceed cost will be.

We have, in good faith negotiated on those letter contracts a not value [sic] at the top.

MR. CHAPPELL. You know the outside limit and treat them as fixed-price contracts?

MR. RUMPH. We treat them as fixed-price contracts as a result, because that is what they become when they are definitized.

MR. CHAPPELL. Are you in any way in breach of the FAR provisions with reference to contracts?

MR. RUMPH. No, sir. I believe I read you those sections from the FAR just a minute ago, sir. (198:462-464)

Mr Chappell asked about the relationship between cost growth and fixed-price contracts and how cost growth occurs on fixed-price contracts.

MR. CHAPPELL. Concerning cost growth on contracts, the F-14D program was originally capped at \$800 million in 1984 dollars. The maximum government liability for this fixed-price contract is now over a billion dollars. What impact did fixed pricing have on this situation?

ADMIRAL DeMAYO. Yes, sir, Mr. Chairman. First, I think we would like to put in perspective what the real numbers are.

The original program for the F-14 was capped at \$855 million in fiscal year 1984 dollars. That was the total program.

The contract, the F-14D contract with Grumman, was capped at \$750 million in 1984 dollars.

So that the \$750 million in 1984 dollars, that equates to about \$863.8 million in then-year dollars.

In addition, we added certain capability through options to the contract. We added IRST [infrared search/track], for \$17.3 million, JTIDS--

MR. CHAPPELL. These were strictly add-ons?

ADMIRAL DeMAYO. Yes, additional capability, and ASPJ [airborne self-protecting jammer], that took the contract value to \$984.3 million in 1984 dollars.

That is the current contract.

There is no cost growth beyond that contract.

Grumman has indicated to us that they are submitting a claim. They are in the process of giving us a proposal that might take that contract beyond \$984.3 million.

We have taken certain action with the contractor--

MR. CHAPPELL. But that is an add-on also?

ADMIRAL DeMAYO. Yes, sir, and we have an agreement with the contractor that our maximum liability as a result of all that effort would be no more than \$100 million beyond the \$984.3 million.

MR. CHAPPELL. The fixed price A-6F program was definitized at \$398 million in June 1986. Less than three months later, an additional \$100 million was authorized for the first ECP, subject to funding approval. What impact did a fixed price have in this situation, Mr. Secretary?

MR. RUMPH. That was the program I described to you concerning Engineering Change Proposal, sir, the ECP-1 on the Libyan Lessons Learned. ECP-1 takes the night attack and the other survivability enhancements into consideration which were not a part of the original baseline.

MR. CHAPPELL. Was this an add-on?

MR. RUMPH. Yes, sir. (198:464)

At the end of the hearing, the Subcommittee gave the witnesses over 100 questions for the record, of which six questions related to

the DoN's RDT&E acquisition policies and the use of fixed-price contracts for weapon system development.

QUESTION. In November 1985, the Navy instituted a major new policy for RDT&E contracting calling for widespread use of fixed-price development contracts, negotiation of production options prior to development, and contractor investment in full-rate tooling and test equipment.

The Committee's Surveys and Investigations Staff has recently issued a report which is sharply critical of the Navy's policy. Let's discuss some of the findings of that report.

One Navy official, when asked to explain the difference between Total Package Procurement (TPP) and the current policy, stated that "we're not doing anything different except we're not going to pay claims." How can the Navy ensure this?

ANSWER. I would not agree with the statement that we're not doing anything different, or that we're not going to pay claims. The new Navy acquisition policy is much different than Total Package Procurement. Any claims submitted to the Navy have been and will continue to be evaluated as has always been our standard practice.

The Total Package Procurement (TPP) concept combined into a single package the procurement of related design, development, total production and support. It was a winner-take-all one-time competition for the entire "package". It envisioned full definition of the scope of the entire procurement using detailed specifications, and entered into fixed price contracts without benefit of prior lowering of risk of streamlining of requirements.

The Navy acquisition policy is very unlike the rigid tenets of TPP. One of the most important aspects of the Navy's acquisition policy is its emphasis on program managers exercising creativity in structuring acquisition strategies to meet the particular needs of their programs.

It is noteworthy that our acquisition policy has fostered more detailed negotiations between Navy program managers, contracting officers and industry. Fixed price contracts, by their nature, require more definitive negotiations of the statement of work prior [sic] to signature on the bottom line. These negotiations are leading to better defined FSED contracts, where the responsibilities of both sides, contractor and Navy, are fully understood. If the risk is too high for contractors to sign a fixed price contract for FSED, the program is kept in advanced development until the risk has been reduced to an acceptable level. However, if the operational requirement for a system is very time urgent, we would proceed into FSED with cost plus type contracting and sign a fixed price contract at critical design review... (198:486-487)

QUESTION. The report quotes Navy officials as saying that the policy is targeted toward limiting Congressional

oversight and control of R&D funding and production quantities. One official stated "OSD and the Congress can't willy-nilly around with our funding and give it to other programs. This doesn't stop the Congress, but it makes it more difficult." Has the Navy ever supported this as a benefit of this policy, and if not, why do Navy officials hold that view?

ANSWER. There is a little bit of truth in that statement; however, it is not entirely true. The policy was not targeted toward limiting Congressional oversight and control. Rather, it was targeted toward managing a contract situation that was out of control. We were in an environment of high-priced sole source contractors who were continually overrunning multi-million dollar cost-type contracts. Much of the blame for this out-of-control situation has to rest on the Government. We have changed that environment to a competitive, fixed price one, with better definition and closer management of both contractor and Government. It must be remembered, however, that in negotiating fixed price/capped arrangements and tooling amortization, the Navy and its contractors are assuming a greater risk. In return, we must ask the support of Congress in backing this arrangements [sic]. We can only continue to negotiate in good faith if we are able to make good on our promise of funding at negotiated amounts. Accordingly, we must ask your help in protecting these programs from budget cuts. (198:489)

QUESTION. Why should the Congress not exercise the same oversight and approval of these RDT&E contracts as they do with MYP [multiyear procurement] candidates, since Navy [sic] has testified that programs must be fully funded for multiple years once the contract is negotiated?

ANSWER. We do not feel these contracts need the same oversight and approval since they're not the same type of arrangements. Multiyear contracts commit funds over a period of several years, and are subject to cancellation charges. These contracts are also awarded to one contractor for that period. Our RDT&E contracts are not subject to this same cancellation ceiling. Exercising the options is at the Government's discretion, and the contractors are at risk of loss for corporate investments in tooling if we choose not to continue the program. We have annual competitions to keep costs down. These are exactly the reasons we ask for protection for these programs. Contractors are not going to do business with the Government if the risk is too high. SECNAV has protected every one of our major fixed price contracts. We ask that you do the same. An uncertain Congressional funding commitment increases the contractor's risk, especially in a competitive environment with annual options and a corporate tooling investment.

[Clerk's note.-While the Navy would not pay cancellation charges under fixed-price RDT&E contract termination or stretch-out, the Navy testified during hearings on the FY 1987 budget that "if we break any of those contracts, it

is going to cost us a lot of money due to anticipated price increases".] (198:489)

QUESTION. The Navy has stated that the use of fixed-price R&D contracts acts to control cost growth. In your experience, what are the causes of R&D cost growth, and how do fixed-price contracts prevent their occurrence?

ANSWER. Cost growth in R&D has been historically caused by lack of management control, too many program changes and disincentives on the part of contractors to control cost. Fixed prices help to prevent the occurrence of overruns due to more detailed negotiations of the statement of work and other requirements prior to contract signature, lowering of program risk prior to entering into fixed price arrangements, better control of changes once we have signed a fixed price contract, better support from OSD and Congress for fixed price contracts, and shift of responsibility to the contractor to remain within the fixed price. (198:491-492)

QUESTION. Mr. Secretary, the Committee is advised that some DoD officials believe the V-22 was inappropriately put under a fixed-price contract due to the technical risk involved, and that as a result the program may be headed for serious cost problems.

Do you believe the V-22 is a low-risk program?

ANSWER. The V-22 is a moderate risk program. Tiltrotor technology is advanced, but mature technology. Much of the risk of the program has been reduced by: (1) the success of the flights of the XV-15 tiltrotor aircraft (the V-22 is an operational derivative of the XV-15) which has proven the viability of the tiltrotor concept and (2) in keeping with SECNAV acquisition strategy (SECNAVINST 4210.6), the preliminary design contract for the V-22 (a cost reimbursement contract) was extended and a second stage added in order to reduce risk prior to proceeding into FSD. (198:509)

QUESTION. Can you assure this Committee that technical risk is low enough to warrant continued use of a fixed-price contract?

ANSWER. Both the contractors and NAVAIR feel that the technical risk is low enough on the V-22 to use a fixed price contract in FSD. The contractors (Bell Helicopter and Boeing Vertol) would not have signed a fixed price FSD contract for \$1.714B if they weren't sure they could do it. During negotiations of the FSD contract the contractors made it clear what it would take, in their estimate, to reduce risk on the program to the point where they would enter a fixed price FSD contract. In order to accommodate the contractors some tasks were deleted and others were moved into the cost reimbursement contract for preliminary design to be proven prior to FSD. (198:509)

Monday, 27 April 1987

The hearing for the Department of the Air Force RDT&E budget proposal took place on this day. The witness was Lt Gen Bernard P. Randolph, Military Deputy for Acquisition and Assistant Secretary of the Air Force for Acquisition (198:663). General Randolph provided a prepared statement for the record and presented a summary briefing (198:663-669). After General Randolph completed his briefing, Mr Chappell asked about a classified program, defense industry investment and risk, Pentagon and defense contractor relationships, and independent research and development and bid and proposal funding levels. Then Mr Chappell asked General Randolph about fixed-price development contracts and the Advanced Medium Range Air-to-Air Missile (AMRAAM) program.

MR. CHAPPELL. Regarding RDT&E contracts, the Navy has gone very heavily to fixed-price contracts. We notice the Air Force has not gone anywhere near as far. Can you comment on that and whether you think the Navy approach is a better one or not?

GENERAL RANDOLPH. Sir, with regard to the Navy, I am not really competent to discuss the Navy's approach. I will tell you what we are doing.

In the Air Force, we have not gone to all fixed-price development contracts, what we do is follow the policies set by the Office of the Secretary of Defense. Those policies state that the contract should reflect the risk that is associated with the effort that is being undertaken.

For example, in the case of a high-risk program in full-scale development, the government should share the risk, and in the long run that comes out at a lower cost.

If we ask the contractor to share the risk with a firm fixed-price contractor [sic] or a fixed-price incentive contract, the price tag will be much higher because we have to pay for that risk taking that he has undertaken.

MR. CHAPPELL. What was the original target cost stated in the AMRAAM FSD contract?

GENERAL RANDOLPH. I think the number was \$336 million, but let me check my notes. Yes, sir; \$336 million.

MR. CHAPPELL. The AMRAAM full-scale development contract was signed in December 1981 on a fixed-price basis because of the Air Force's assessment of low program risk. Cost growth over the following four years led to a Congressional cap on R&D costs under threat of termination. You have stated the

original target cost in the AMRAAM FSD contract. Do you remember what that Congressional cost cap was?

General RANDOLPH. Yes, sir; \$556 million.

MR. CHAPPELL. Looking back on it, what effect do you think this fixed pricing had on controlling costs in the AMRAAM program?

GENERAL RANDOLPH. Well, obviously, it had the effect of keeping the dollars down, but I will have to say in candor, Mr. Chairman, that probably was not the right kind of contract for that effort.

Twenty-twenty hindsight is always better, but the fact was that that is exactly the type of effort I was just talking about where the risk was too high.

MR. CHAPPELL. Then the error was made in determining that it was a low risk?

GENERAL RANDOLPH. That is correct. Yes, sir.

MR. CHAPPELL. I wonder if you have with you a list of the Air Force RDT&E programs, either executed or planned for execution, under fixed-price contracts, for each of the years 1985 to 1989? Do you have the list with you?

GENERAL RANDOLPH. I don't but I can provide that for the record.

[Clerk's note.-The information was provided for the Committee's files.] (198:704-705)

The Subcommittee members then reviewed other Air Force programs with General Randolph. At the end of the hearing, the Subcommittee gave the witness many questions for the record, six of which related to fixed-price development contracts.

QUESTION. General Randolph, the Navy has a policy which presumes the use of fixed-price FSD contracts in almost all cases. The Committee notes that the Air Force (and the Army) have not adopted the Navy's approach, but use a more balanced mix of different types of contracts. The Navy claims significant cost savings from fixed-price R&D contracts. However, our S&I staff strongly disputes that claim. What do the Air Force experts say concerning cost savings from such contracts?

ANSWER. The present DoD policy, to which we fully subscribe, is to evaluate each specific acquisition on its own merits, determine the risks involved, and apply the type of contract that is appropriate, whether it's a fixed price or cost type contract. The type of contract and pricing structure chosen for the acquisition should share risk over the cost risk range to give the contractor an opportunity to earn an adequate profit if he manages the acquisition effectively. Application of an inappropriate contract type to a high risk situation can have detrimental effects depending on the relative bargaining strength of the Government and the contractor. For instance, if the Government is in a superior bargaining position (i.e., competitive acquisition) and

forces a low price fixed price type contract into a high risk situation, the contractor may deploy methods such as submitting excessive engineering change proposals and claims and workmanship shortcuts to drive the prices up after the contract is signed. On the other hand, if the contractor is in a superior bargaining position, he may accept a fixed price contract only if the price is high enough to cover all of his cost contingencies. If the proper type contract is selected and structured properly, there should neither be excessive profits (underrun) or losses (overrun). (198:718)

QUESTION. A recent report by this committee's S&I Staff concluded, after talking to Air Force officials, that "program managers anticipate funding cuts and include clauses in fixed price contracts that allow reimbursement to contractor [sic] only for those additional costs incurred that are attributable to funding delays. This prevents complete reopening of contract negotiations due to funding cuts." This seems like a good procedure, since it increases the government's flexibility. Would you explain this Air Force practice in more detail? Is the use of such provisions encouraged or directed by Air Force policy?

ANSWER. The Air Force often does not fully fund fixed-price contracts which are for other than production, i.e., demonstration/validation, full-scale development efforts, but does fund a portion of the contracts in accordance with how much funding is available. The Air Force includes a clause in these contracts which allows the negotiation of an equitable adjustment should the additional funds become available at a date later than anticipated. This procedure allows an adjustment to the contract costs and/or schedule to the extent the contractor can substantiate and the Government agrees that additional costs or delays were incurred as a result of the funding delay or cut. Funding cuts can result, however, in major program and contract restructuring. The Air Force Systems Command Federal Acquisition Regulations Supplement provides a standard clause entitled, "Limitation of Government's Obligation." This clause provides for use of this procedure and is attached. (198:719)

QUESTION. Are such provisions in ATF contracts, and are they planned for NASP?

ANSWER. Similar clauses are in both the ATF and NASP contracts. (198:719)

QUESTION. Fixed-price contracts are normally reserved for low risk R&D programs. According to the Air Force, the National Aero-Space Plane program is a high risk effort. Yet the Air Force intends to award fixed-price contracts for the next phase of this work. How is fixed-price justified for this program?

ANSWER. Fixed-price contracts (with fixed price options) for the large airframe and engine contractors involved in Phase II of the NASP program were desirable and made possible for two reasons:

First, Phase II of the program represents a fixed price investment in being able to determine whether or not the development, manufacture, and flight of an actual X-30 experimental flight research vehicle will be possible. In essence, the program is asking, "is the design, manufacture, and flight of the X-30 possible?" The NASP program wanted to keep a cap on the cost of answering that question. According to current schedules, late FY 1989 (the end of Phase II) will see that question answered. It is unlikely that Phase III (design, manufacture, and flight test of two X-30 vehicles) will be conducted fixed-price.

Second, fixed-price contracts for Phase II were made possible because of the highly competitive nature of the program (the same quality that drove competing NASP contractors to commit their own private capital). There seemed no way to maintain a fair and equitable competition among the contractors unless they were funded to the same level, thus firm fixed-price contracts with fixed-price options (should they be selected to continue at the next down-select point).

It is indeed fair to say that this program is "high risk". However, it is important to understand that this fact is fully recognized and that the entire program is structured to address and manage this risk to maximize the probability of success. Risk assessment and risk closure plans are being formulated at every contractor and within the government. Approached in this manner, "high risk" is the incentive for excellence in the program and commitment by private industry at an affordable cost, rather than a cause for unnecessary caution. (198:719-720)

QUESTION. What percentage of total R&D cost [for the Worldwide Airborne Military Command Post replacement] is for software development, and what is the estimate of software technical risk?

ANSWER. The software development costs are estimated to account for approximately 15 to 20 percent of total R&D costs. The technical risk estimate is moderate. A great deal of up-front work will be accomplished in software development during the Demonstration and Validation phase. The approach is designed to reduce risks before the FSD phase begins. (198:725)

QUESTION. How is a firm fixed price contract [for the Worldwide Airborne Military Command Post replacement] justified, given the large software package and the fact that some aircraft candidates have not yet completed their own development and testing?

ANSWER. Only the Demonstration and Validation phase will be a firm-fixed price contract. During this phase the contractors will be asked to develop preliminary software packages, not fully developed large scale software packages. Additionally, the aircraft will be selected by the government, and the contractors will only have to develop modification specifications. No aircraft metal will be "bent"

until FSD. The FSD phase will be a fixed price incentive contract in which the government will share some of the risks associated with the software development. The aircraft that is selected will be procured by the government and delivered GFE to the FSD contractor for modification and C3 suite integration. (198:725)

Appendix B: Testimony on Fixed-Price Type Contracts
for Weapon System Development from Hearings on
the Fiscal Year 1989 Department of Defense Appropriations Act

As part of evaluating the FY 1989 DoD budget proposal, the HAC's Subcommittee on the Department of Defense held 38 days of hearings, intermittently from 1 February 1988 through 4 May 1988 (194:4). The transcript of these hearings consists of 5,100 pages, of which 850 pages were not printed because of security classification reasons (194:4). An examination reveals that the published record of these hearings consists of 4279 pages of text in 7 volumes.

This appendix presents all testimony from this record related to using fixed-price type contracts for weapon system development. The hearings, during which this testimony from senior industry managers and DoD civilian and military officials was given, took place on 25 February 1988, 1 March 1988, and 4 May 1988. Portions of this testimony are in the fourth chapter of this thesis and are examined there as part of the analysis of the sources of legislative history. This appendix presents all testimony as background information for the subject of this thesis and the interest of the reader.

Thursday, 25 February 1988

The hearing for the FY 1989 defense posture took place on this day. The witnesses were the Honorable Frank C. Carlucci, Secretary of Defense, and Admiral William J. Crowe, Jr, Chairman of the Joint Chiefs of Staff (199:1). At the beginning of the hearing, the witnesses provided the Annual Report to the Congress by the Secretary of Defense, the Military Posture Statement by the Chairman of the Joint Chiefs of Staff, and their prepared statements for the hearing record

(199:2,28-33,41-51,155-455,456-568). The witnesses then summarized their statements for the Subcommittee (199:3-7,34-40). During the question-and-answer period that followed, Mr McDade from Pennsylvania asked Secretary Carlucci about DoD's recommendation to exclude a clause on the use of fixed-price contracts from legislation for FY 1989 DoD appropriations.

MR. McDADE. I know there has been a great concern on your part on fixed-price R&D contracts.

SECRETARY CARLUCCI. I am very much against it.

MR. McDADE. We are, too, and this year's budget requests a repeal of new authorities we gave to OSD last year for greater oversight and control over these contracts.

SECRETARY CARLUCCI. Oh, really?

MR. McDADE. Last year in Section 8118, we gave you additional authority at OSD. For some reason, it is in the budget suggesting that Section 8118 of our last year's appropriation should be repealed.

Would you look at it?

SECRETARY CARLUCCI. I hereby revoke that.

MR. McDADE. I am glad to hear that.

SECRETARY CARLUCCI. I better find out what the rationale is.

MR. McDADE. We better keep you here because we could get a lot of things settled between your shop and this shop.

MR. DICKS. The Comptroller got a little bit flushed when you said that. (199:105)

At the end of the hearing, the Subcommittee provided questions for the record on general provisions, one of which is shown below with its answer. The underlined page reference after the title of the provision refers to the page in the DoD Budget Proposal where deletion of the provision was recommended.

QUESTION. For any section proposed for deletion in the fiscal 1988/1989 budgets, include:

a. The rationale for deletion. Please be specific. A general answer that DOD believes it is no longer necessary should be expanded to explain why.

b. Provide an explanation of any additional language proposed to a section other than language just extending the provision into fiscal 1990.

c. Provide an explanation for any new provisions requested in the fiscal year 1989 budget.

ANSWER. Following is a discussion of the language changes and deletions requested with respect to the general

provisions of the fiscal year 1988 Appropriations Act. In discussing these provisions, they will be referred to by both the section numbers as they appear in the fiscal year 1988 Appropriations Act and as requested for fiscal year 1989 in the case of sections that have been renumbered...

SECTION [8118] -- DEVELOPMENT OF MAJOR SYSTEM OR SUBSYSTEM
(Page I-G63)

This section provides that no funds under a fixed-price type contract in excess of \$10 million for the development of a major system or subsystem shall be obligated unless the Under Secretary of Defense for Acquisition determines, in writing, that program risk has been reduced and that the contract type permits a sensible allocation of program risk between the contracting parties. It further provides that the authority to make the determination may not be delegated below the Assistant Secretary level in the Office of the Secretary of Defense and that the Under Secretary shall submit quarterly reports to the Appropriations Committees on such contracts on which funds have been obligated. The Department has no objection to the substantive objectives of this provision and considers that sensible allocations of risk should be achieved in all programs. This provision was recommended for deletion from the Appropriations Act on the basis that its objectives are equally obtainable in the absence of such a provision. (199:122,136-137)

Tuesday, 1 March 1988

The hearing for the fiscal year 1989 DoN posture took place on this day. The witnesses were the Honorable H. Lawrence Garrett III, Secretary of the Navy; Admiral Carlisle A. H. Trost, Chief of Naval Operations; and, General Alfred M. Gray, Commandant, USMC (199:737). The witnesses provided posture statements which were submitted for the record (199:737,833-868,869-891,892-1043). Secretary Garrett's posture statement explained the DoN's management initiatives to improve industrial operations and then focused on the tailoring of these initiatives to commercial practices and the benefits that resulted.

V. NAVY MANAGEMENT INITIATIVES

As funding becomes even more austere, fiscal and management initiatives to reduce acquisition cost and to protect our essential industrial base are more important than ever. We continue to develop initiatives to rationalize Navy

expenditure for equipment, maintenance, and capital improvements. The Department of the Navy has had underway since 1984 a series of reforms directed at improving the management of the Department of the Navy's industrial activity operations...

We are taking our cues from industry as we implement business management practices similar to the commercial world. Through greater use of competition, fixed price contracts and contractor investment we are realizing improved performance, better quality products and reduced cost for the American taxpayer. Dual sourcing now starts in the development process and will pay off with production savings on programs such as the AN/BSY-2 Submarine Combat System.

Navy contractors benefit from higher allowable profits for fixed price development contracts than they can under a cost-type arrangement which has a statutory limit on fee. Our use of flexible fixed price arrangements--fixed price incentive vice firm fixed price--for low risk definitively negotiated full scale development contracts is being lauded by Navy program managers and their contractors. (199:858,865-866)

Each witness gave a summary statement and then answered questions from the Subcommittee (199:737-748). In the hearing's afternoon session, Mr McDade began his round of questioning by asking Secretary Garrett about the DoN's policy for using fixed-price contracts for weapon system development.

MR. CHAPPELL. Mr. McDade.

MR. McDADE. Thank you, Mr. Chairman.

The question of fixed price development contracts is one that the Committee has taken great interest in. The Secretary of Defense was up here and we talked to him about fixed-price contracts and he stated his opposition to fixed-price R&D contracts.

As we understand it, you still have an existing policy prohibiting them. Where are you now with respect to fixed-price R&D contracts?

MR. GARRETT. I haven't been beaten bloody over the Navy's position yet, but as I told some of my old counterparts with the Office of the Secretary of Defense, I have never been wed to that policy. That was a preexisting policy within the Department.

I do not necessarily think that that is the way to go, but--on the other hand, in certain instances it may not necessarily be a bad way to go.

What we are doing is reviewing our policy. As I understand the policy handed down by the Secretary of Defense, we are not per se to use the vehicle of a fixed price R&D contract. However, there are provisions for waiver in those instances where the parties agree that it is an acceptable way to go.

The risk is understood. We are revising our policy and, as I said, as the acting Secretary and certainly as the Under Secretary, I am not wed to fixed price--

MR. McDADE. So you will have a new policy?

MR. GARRETT. We will have a new policy. It may not be a prohibition per se in every instance.

MR. McDADE. You reserve a right to have a waiver?

MR. GARRETT. In appropriate circumstances.

MR. McDADE. Give me an example of an R&D contract where the risk is understood. When you deal with R&D, you are by definition talking about something that isn't well understood, it seems to us.

MR. GARRETT. As a general rule you could apply that, but not in every instance. I can't give you an example of a particular contract where it--

MR. McDADE. What you wanted is conform the policy but reserve the right--

MR. GARRETT. That is right. I will conform the policy to that articulated by the Secretary of Defense and the Under Secretary of Defense for Acquisition, and we will get on with it. (199:785-786)

Wednesday, 4 May 1988

The HAC's fiscal year 1989 hearings for procurement acquisition reform took place on this day to receive testimony about ways to streamline the procurement process and promote cooperation between the DoD and industry (200:573). The Subcommittee wanted to examine how DoD and industry could work together to provide the best possible products and services with declining budgets (200:573). The witnesses were the Honorable Robert B. Costello, Under Secretary of Defense for Acquisition; Thomas G. Pownall, Chairman of the Executive Committee, Martin-Marietta Corporation; Beverly F. Dolan, President and Chief Executive Officer, Textron, Incorporated; and, Eugene Buckley, President, Sikorsky Aircraft (200:573). The witnesses submitted their prepared statements for the record (200:573,576-578,586-592,595-602,606-614). Each witness also provided a summary statement (200:574-575,584-585,593-594,604-605).

In his prepared statement, Mr Pownall gave some of the symptoms of the unfavorable environment in which defense contractors work, one of which was fixed-price development contracts.

The unrelenting criminalization of the acquisition process; the reduction in levels of contract financing; the preoccupation with profit as opposed to economy and efficiency; the shift of unconscienable [sic] risk to industry through fixed price development, prematurely priced options, and extended performance warranties; sharing in development investments without assurance of program execution; excessive oversight and audit activity; elimination of the completed method of contract accounting; the growing lack of program stability; budget uncertainties; protracted procurement leadtimes - all of these have induced some to leave the industrial base, some to ponder the advisability of entering the industrial base, and - for those of us who choose to remain - it has made life more difficult in many significant ways which hurt, rather than help, the security of our nation. Most important of all, it is straining our resources and draining our vitality - discouraging new investment, technical innovation, facilitization, and diverting management resources to problem areas which contribute little or nothing to the excellence of the end product.

If the Congress and the Department of Defense do not make the hard choices necessary to alter policies and to invest finite resources needed to change the course of future events, national security may be endangered to an irretrievable degree. (200:591)

Mr Dolan's summary statement clarified Mr Pownall's perception, referenced in the previous paragraph's extract from the prepared statement, that the government was shifting unconscionable risk to industry. Mr Dolan claimed that the imbalance in the risk/return relationship, created by a trend toward higher risks and lower returns, would result in a shift of investment funds away from defense research and development activities. The long-term outcome of this shift would be that the armed forces would no longer have technologically superior equipment to offset an opponent's superiority in numbers.

Defense industry suppliers, of course, are concerned about the financial performance of their individual companies, but the fate of an individual company is of no special concern to Congress or to the defense procurement establishment.

What is important to them and our Nation is the overall health and long-term strengths of the United States defense industrial base.

Is there a problem? Yes.

Basically, the risk return relationship fundamental to any business arrangement between buyers and sellers has gotten out of balance. This imbalance is due mainly to some new procurement initiatives and practices instituted over the past several years.

Here I refer to such things as fixed-price development, reduced progress payments and IR&D, and second-source production, to name a few.

Wall Street has picked up on the increased risk and profit squeeze and applied it to the defense industry, thereby tending to discount all the stocks of corporations in this area.

But the real longer-term problem for the Nation is only beginning to emerge for the less involved observer.

In short, as returns are reduced, shareholders will insist that corporate management shift investment funds for defense-related R&D and new facilities to those business areas with better returns.

The United States' ability to maintain peace in the face of numerically superior adversaries is hinged upon the superiority of our individual fighting man and his equipment.

Therefore, it is absolutely mandatory that the industrial base supplying that superior equipment be there when needed and have technologic [sic] strengths based upon the long-term R&D investments.

This will not be the case without a business relationship satisfactory to both the government buyer and the defense industry supplier.

There are signs that the trends to higher risk and lower returns is [sic] reversing due to recent actions by Congress and DOD.

For example, this committee's limits on fixed-price development and Secretary Carlucci's and Under Secretary Costello's efforts for efficient production rates and removal of unnecessary procurement costs have helped, but much more needs to be done to establish the proper balance and stability.

This, in turn, will help foster better trust and relationships between buyer and seller as it is accomplished.

This committee is to be commended for looking into this important issue, and I am pleased to be here to discuss the problems and any possible solutions with you.

Thank you, Mr. Chairman.

MR. CHAPPELL. Thank you. (200:594-595)

Mr Dolan's prepared statement reflected the same concerns which he had summarized for the Subcommittee.

Unfortunately, for a variety of reasons, the basic business equation linking DOD and its supplier base has become out of

balance. Specifically, the economic returns available are no longer commensurate with the risks which are to be taken. This imbalance is a direct result of numerous changes in procurement policies and practices initiated during the past few years. The list of these procurement changes is extensive: decreased progress payments, increased unallowable costs, second sourcing, spare parts breakouts, competitive teaming and production, cost sharing, fixed price development contracts, premature pricing of production options, and contractor funding of special tooling to name a few.

While these changes were initiated in response to perceived widespread abuses and the need to generate more procurement "bang for the buck," and may have appeared somewhat successful in the near term, the long run impact will be a significant erosion of the defense industrial base.

...Because of increased risk and reduced return, contractors will be pressured to reduce their investments in R&D and capital equipment. There will be less technological innovation and capability and fewer firms to compete.

Specific evidence of the financial strain contractors have been placed under is easy to find. The stock market made its assessment some time ago --- defense stocks trade at significant discounts to the overall market. Many contractors have experienced major write-offs. A number of larger corporations are in the process of de-emphasizing or divesting their defense units. Perhaps most interesting of all, the contractors participating in the Advanced Tactical Fighter competition have publicly stated that program demands are forcing cuts in the rest of their R&D efforts. This cutback in R&D is indicative of what is happening across the entire industry. This is not good for our nation's long term ability to maintain a technological superiority over our adversaries. (200:597-598).

Mr Dolan's prepared statement then gave what he believed was the direction in which Congress, DoD, and industry should go.

I would suggest to you today that we must undertake a joint effort among the Congress, the Department of Defense and the defense industry to forge a new partnership based on mutual trust and integrity. The industry has made major strides in self policing against fraud, waste and abuse. Also, we must restore more sensible business incentives in the defense procurement process if America is to have a strong and capable industrial base to support its future needs in either peace or war.

I have been pleased to observe that some initial steps have been taken recently to set this effort in motion. Last year, Mr. Chairman, your committee won approval of language in the final version of the Fiscal Year 1988 Department of Defense Appropriations Act which placed limits on fixed price development contracts...Under Secretary Costello has also gone on record that no Fixed Price Development contracts will be entered into without his approval. While

we are concerned that there may be excessive waivers of this restriction on Fixed Price Development, this is a strong step in the right direction. Secretary Carlucci earlier this year called upon all members of the acquisition community to commit themselves to fundamental changes in the contracting process. He set forth three principles which would underlie these changes: stability in funding, planning and acquisition; quality in acquisitions to sustain the drive for excellence; and partnership in carrying out the mission before us. (200:598-599).

Mr Dolan's statement concluded with specific recommendations which he believed should be considered, one of which was the use of appropriate contract type (200:600).

Mr Buckley's prepared statement also examined the problems with the way that DoD manages weapon system development activities. The length of development and the participants' desire to avoid mistakes has created an expensive, cumbersome process. Because of the length of time and great expense, the DoD attempts fewer developments which try to achieve greater advances in technology, rather than more developments which have less ambitious goals. This adds further risk in an activity whose outcomes are already inherently uncertain.

The successful, timely development and acquisition of military systems adequate to provide for our nations'[sic] security is almost as complex as it is important. We want to do it right. But our impulse to avoid mistakes of commission has brought us perilously close to gridlock. It takes us today well over a decade from clear recognition of a requirement to fielding of a system designed to satisfy that requirement. That is too long. It can be dangerous. It is frequently unresponsive to military requirements. And it is too often more expensive than it should be.

Since our development and procurement cycle is stretched out over such a long period of time, and also because our efforts to avoid mistakes have made the process so cumbersome and expensive, we have decreased the frequency with which we attempt new development. Consequently, we have typically attempted to make larger advances in technology in each of these fewer, less frequent developments. We have thereby increased the difficulty and risk and further increased the impulse to introduce controls of all kinds to avoid making mistakes.

Since this smaller number of more challenging developments inevitability [sic] means that we have more riding on each,

it has become inescapable that there will be, and are, conflicting views on how best to achieve balance between improvements in effectiveness and the associated technological risk. This leads to the introduction of more reviews to avoid mistakes, more audits to eliminate abuse, and more duplication to insure competition... (200:608-609)

His prepared statement then suggested several improvements, the most important of which concerned the acquisition approach to weapon system development. Mr Buckley believed the most important change was to have more frequent, less risky developments. In undertaking these developments, the DoD should not manage its risk by introducing burdensome controls, some of which may be intended to limit its cost liability. Rather, DoD should take the responsibility for cost risk and hold the contractors accountable for unacceptable performance.

Let me indicate briefly what I think the major dimensions of a restructured development and acquisition process might look like, and the benefits that could accrue to our nation from it...

Above all, we need to start developments more frequently but with more modest risk. We need much more emphasis on pre-planned product improvements and development programs with less technological risk, undertaken more frequently. We can build a better foundation if we avoid overly demanding developments taken only rarely, as has been the recent practice in my own industry.

When we launch these more frequent and less ambitious development programs, we should change the policies of the recent past which have attempted to shift the risk of development onto the defense contractor. You are all familiar with the means by which such a shift has been made -- fixed price development, contractor-financed tooling, reduced progress payments and reduced Independent Research and Development ceilings -- so I will not elaborate. The Defense Industry Advisory Group Report to Senator Bingaman's subcommittee of the Senate Committee on Armed Services has already done so. I agree with the thrust of that report.

But what I want to say here is something different. Our defense contractors, working in collaboration with the Department of Defense and Congress, should be encouraged to take development risks in order to exceed expectations of performance and to reduce the costs of procurement. They should not be required to take the financial risks of development, particularly when such risks are not only unknown but unknowable, but they must accept the risk that less than successful development will not lead to procurement. (200:610,611-612)

Later, the witnesses and Mr McDade discussed at length development risk and the use of fixed-price contracts.

MR. POWNALL. Mr. Chairman, I think that when addressing these issues we have to also address risk concurrency, because risk is a factor and what we are thinking of doing or trying to do, what we have been trying to do so far as has been said earlier today, is to shift the risk decidedly over toward the contractor to the point where we have now got fixed price development.

We have got cost sharing in development. We have got performance warranties that were unheard of ten or fifteen years ago. We are pricing production options with the commencement of full scale development, I mean fixed price production options 6,7,8,9, years downstream. The hazard in that is obvious, I think. That is, if you stub your toe badly one time, you will wipe out a whole division or wipe out your job or both. But we must treat risk along with all these other things we are talking about in a more sane way than we have been able to do in the last ten years.

DR. COSTELLO. To underscore that, the Secretary and I have both been very vocal about it. If we can define exactly what we want then we can expect a contractor to define exactly what it is going to cost us. That is not true in most development contracts and we have been very firm on that.

We initiated directives in December. We have all of the Services concurring. If there are to be fixed price contracts, we are to be responsible and determine if there is a rational risk assessment. We are taking that very seriously. We think it has some effect because haven't [sic] seen very many since we put that word out.

MR. McDADE. Mr. Secretary, I want to address that issue with you. Last year this Committee took the lead in restricting the use of fixed price development contracts. We thought the question of risk sharing, particularly in R&D contracts, was absolutely the wrong thing to do.

We got the DOD's budget up and your budget opposed our provision. In other words, it came out against it. I asked Secretary Carlucci about it and he said he would repeal that part of the budget immediately. Nevertheless, I find there seem [sic] to be nine lives here, because I have a letter from you in which you say you no longer think the law is necessary. This is what the letter says --- "you don't think the policy of widespread use of fixed price contracts for developments is wise." Our staff is advised that in the fiscal year 1989 budget, it appears there is \$3.5 billion in fixed price R&D and, as the staff gets a cut at it, they say they think it is even broader than that.

So we wrote a law saying there is a problem. There is too much risk asking a contractor to do fixed price R&D. It is not sound government policy. We have a broad consensus.

We said you can't do that unless certain guidelines are followed. Secretary Carlucci was up and I asked him and he

said "I agree with you. I repeal that." Now you are back with a memo that says we are not going to try to have a law. We will try to administer it and it sounds like there is more than \$3.5 billion in fixed price R&D contracts going on, which sounds pretty widespread to this member of the committee.

DR. COSTELLO. It was widespread. Those are mainly carry-ons from contracts we already had in place. I have approved only four new fixed-price development contracts to date under the requirement in the Fiscal Year 1988 Appropriations Act.

MR. McDADE. I hope you are right because I thought this was a non-problem. It seems to be recurring.

DR. COSTELLO. There are some times when a fixed price development contract is advantageous to both of us. I would like to cite an example.

In general, I don't think they are a good idea. But, if you say we are precluded by law from ever having any, that takes some flexibility away from the contractor as well as ourselves.

I brought that to the attention of the Armed Forces Policy Council, which includes the Chiefs of the Services, the Secretaries of the Services, etc. Burt Rutan who runs Scaled Composites, Incorporated, a small company in Mojave, California, says you have to work hard in Mojave because there is nothing else to do in town. He had a program that we carefully structured with DARPA.

I use it as an example because it is a clearcut case we can do some things. They carefully structured that program. He said, "I want a fixed price contract because I know exactly what I am going to do." We developed a 14-page specification for a new airplane from a clean sheet of paper, and he said, "I want to do it and it is going to cost me \$2.5 million. I don't want anybody in my plant, nobody." Everybody says you can't do that. But the answer is we did do it.

By accident one guy did get in. One auditor did go into his plant once. But it was unnecessary and didn't make any difference. It was a firm fixed price contract for \$2.5 million.

MR. McDADE. When did you do that?

DR. COSTELLO. The first part of the contract was just completed. He is finishing up the test flight. Brand new airplane, \$2.5 million, two years, fixed price, no audits, nobody in his plant. Fourteen pages of specifications, a 44 page--with no boilerplate--contract. He has made money on it.

The plane flies. He has innovative programs. Now, I brought to the attention of the key people in the Defense Department to show them that we can do business this way. We didn't break any laws. We didn't violate any statutes. We can operate that way.

Secretary Carlucci asked why we didn't make all contracts that way. I said as rapidly as we can, we should. But remember this. We have built in an infrastructure of people that believe in specifications and regulations, both in the

contractor's offices and our offices. They look at this as a threat to their jobs. It is a fundamental cultural change.

We don't need laws to be good managers. Good laws don't necessarily make good managers. We are asking for the freedom and the management responsibility to do the job right.

We have made those fundamental changes. The Secretary and I are both opposed to fixed price development contracts for high risk efforts. Most of the contracts you are referring to were in place. We would have to re-open those contracts and basically void the negotiations we had. Even the contractors that have been involved don't think that is a good idea.

MR. McDADE. If they are ongoing contracts, I think we all would agree if the contracts had been signed. Are you saying there are no new starts?

DR. COSTELLO. I am just checking to make sure. I have approved four new contracts.

MR. McDADE. There are no new starts in fixed price R&D or development contracts?

DR. COSTELLO. Just those four.

MR. McDADE. If there are any others that are new starts in the budget, you would oppose them, of course?

DR. COSTELLO. I would have to be convinced that it is the best way to go for everyone concerned. I am not going to take a blanket position, I am not going to oppose all of them because I just cited one that was appropriate.

MR. McDADE. I would respect anybody who wanted to have flexibility, but I am not going to sit by and see the practice continue after there is apparently a consensus that it should evaporate and go away.

In fact, there was a law specifically passed that said "hold on, here." So if you are asking for some flexibility, I am not unwilling to give some flexibility but I am certainly not willing to abandon the policy.

DR. COSTELLO. The intent of our efforts is compatible with the legislative intent. Don't put the contractor at risk.

MR. McDADE. You are aware the law said only those over \$10 million would come to your attention.

DR. COSTELLO. We really don't think we need that much help. I look at the major programs.

MR. McDADE. Past history would say you need a lot of help. Past history says you have got a calamity on your hands. That is past history and that is what we have got to deal with.

I am perfectly willing to accept the fact that you want to have new starts, but history would tell you that maybe you are not going to be able to do that.

You are talking about cultural problems, institutional problems, layers of bureaucracy that may oppose you.

DR. COSTELLO. I have personally met with the acquisition officers and we are resolved that it is not an appropriate method of contracting for the bulk of our high risk development contracts. If there are any unique cases where we want to do fixed price development work, then come see and talk to me about it.

MR. McDADE. Send us a list of any new start that is on fixed price contract.

DR. COSTELLO. We will.

[The information follows:]

As of May 4, 1988, I have approved under Section 8118 of the Department of Defense Appropriations Act for Fiscal Year 1988 the initial award of a fixed-price contract for the following development efforts: A-12 Full Scale Engineering Development; AN/BSY-2 Full Scale Engineering Development; HARM Low Cost Seeker Full Scale Engineering Development; and the Tactical Air Operations Center Modular Control Equipment Pre-Planned Product Improvements Program. (200:619-622)

Towards the end of the hearing, Mr Dicks asked about contractor investment in development. Dr Costello's answer included statements on the use fixed-price development contracts.

MR. DICKS One area where there is a lot of concern is some of the services, especially the Air Force and the Navy-- requiring a substantial financial participation by the industry in new programs like the advanced tactical fighter.

We are not talking about minor contributions; we are talking about significant investments being demanded in order to stay in the competition and to be part of it.

I think that can work once or twice, but aren't we running a risk of losing some of our defense contractors if they invest heavily, \$160-, \$180-, \$200-million, and then they are on the losing side of one of these team efforts? Isn't this a problem we will confront if the services in the kind of financial squeeze that we are in now keep demanding this kind of financial participation?

DR. COSTELLO. I think it has been discussed some, but I think that I will make it very straight-forward. Secretary Carlucci and I feel that excessive use of fixed price contracts is counterproductive. The worst thing you can do is to put a contractor into bankruptcy and then find another to take over that responsibility.

We have significant efforts under way. We have looked at the use of firm-fixed price development contracts and said, "No." I have to approve them myself. We have discussed and reviewed and gone back to the maximum allowable level for special tooling, reimbursement and timeliness so we are now living within the law. We have looked at some of the interpretations and said within our authority, we can go back and readdress some of those basic issues. (200:660)

There was no further discussion on the use of fixed-price type contracts for weapon system development. The Subcommittee did not give the witnesses any questions for the record, and the hearing was adjourned.

Appendix C: Testimony on Fixed-Price Type Contracts
for Weapon System Development from Hearings on
the Defense Industry and Technology Act of 1988
and the Fiscal Year 1989 National Defense Authorization Act

As part of the enactment process for two national defense legislative proposals introduced in the Spring of 1988, the SASC and its subcommittees held a total of 45 hearings (210:6). The published record of these hearings consists of seven volumes with a total of 3868 pages. This appendix presents all testimony from this record related to using fixed-price type contracts for weapon system development programs. The hearings, during which this testimony from senior industry managers and DoD civilian and military officials was given, took place on 13 and 14 April 1988, and were conducted by the SASC's Subcommittee on Defense Industry and Technology. Portions of this testimony are in the fifth chapter of this thesis and are examined there as part of the analysis of the sources of legislative history. This appendix presents all testimony as background information for the subject of this thesis and the interest of the reader.

Wednesday, 13 April 1988

The hearing for S. 2254, the Defense Industry and Technology Act of 1988, took place on this day. Three groups of witnesses--the four acquisition executives from DoD, the DoD Deputy Inspector General, and a panel from private industry--appeared before the Subcommittee (211:300,430). The first witnesses to testify were the Honorable Robert B. Costello, the Undersecretary of Defense for Acquisition; the Honorable H. Lawrence Garrett III, Undersecretary of the Navy; the Honorable Jay R. Sculley, Assistant Secretary of the Army for Research,

Development, and Acquisition; and, the Honorable John J. Welch, Jr, Assistant Secretary of the Air Force for Acquisition (211:301).

The Subcommittee agreed to include in the hearing record USD(A)'s comments on the IAG report (211:300,305-333). By letter of transmittal, Dr Costello submitted comments on all 20 issue papers (211:305). These comments considered the inputs from the military departments, the Defense Logistics Agency, the Defense Contract Audit Agency, and the Defense Systems Management College (211:305). USD(A)'s comments on two of these issues, the conflict between profit and investment policies and shifting undue risk to the contractor, referred to fixed-price development contracts.

USD(A)'s response to the issue paper on the conflict between profit and investment policies addressed five areas--cost sharing on R&D contracts, fixed-price contracts for R&D effort, special tooling/test equipment funding, progress payment reduction from 90% to 75%, and changes in completed contract method for income taxes (211:307-312). The IAG believed the cumulative effects of current DoD policies in these five areas created an imbalance between risk and reward (211:307). The reference to fixed-price type development contracts included in USD(A)'s response to this issue paper summarized the IAG's concern before presenting DoD's position.

FIXED-PRICE R&D CONTRACTS

PROBLEM

There has been an increase in the improper use of fixed-price type contracts for R&D effort.

DISCUSSION

The contracting officer should select a contract type that is commensurate with the contractor's risks in performing the work. Because R&D effort involves uncertainties that place substantial risk on the contractor, fixed-price contracts are

generally inappropriate. Recently, however, the Navy has spearheaded the greater use of fixed-price type contracts for R&D effort; the Army and Air Force followed. Their purpose has been to limit the DoD's cost risk by shifting responsibility to the contractor.

Past experience has proven that DoD has not been successful when attempting to shift risk in this manner. It represents a short-sighted perspective. For example, if as a result, DoD causes the contractor to become bankrupted, then the contractor cannot deliver the product to DoD. Further, this approach may lead to misuse of the contract changes provisions in order to give the contractor an avenue to "get well". In addition, a fixed-price type contract may keep DoD in the dark about contract performance until the problem reaches major proportions.

INDUSTRY'S RECOMMENDATION

Prohibit fixed-price contracts for R&D effort and prohibit premature pricing of production.

STEPS ALREADY TAKEN BY DOD

DoD's policies have been reiterated in DoD Directive 5000.1 and by USD(A) letter to the Military Services in December 1987. Congress passed a law requiring risk analysis and USD(A) certification on procurements over \$10 million.

RECOMMENDED FURTHER ACTION

DoD is currently implementing Congress' legislation. In the future, procurement strategies on individual systems acquisition programs will be carefully reviewed to ensure compliance with both DoD's policy and Congress' intent. (211:309-310)

USD(A)'s response to the other IAG issue paper, on shifting undue risk to the contractor, addressed three areas--fixed-price development contracts, pricing of production options prior to development, and cost sharing on R&D contracts. The IAG believed the cumulative effects of current DoD policies in these areas would upset the balance of investment in new programs, independent research and development (IR&D), and productivity improvements in mature programs (211:682). The reference to fixed-price development contracts included in USD(A)'s

response to this issue paper summarized the IAG's concern before presenting the DoD position.

ISSUE: Shifting Undue Risk to the Contractor

AD HOC COMMITTEE RECOMMENDATIONS: The Industry Advisory Group makes three recommendations in this area: first, ensuring that cost-type contracts are normally used for weapon system development programs by requiring by statute Secretary of Defense authorization for the use of a fixed-price contract to execute such a program; second, ending the practice of requiring a contractor to commit to a fixed price for production of a weapon system before development of that system is completed by prohibiting the Department by statute from obtaining fixed-price production options from a contractor until the third year of production; and, third, prohibiting by statute's "cost sharing", defined as requiring a contractor to pay a portion of the development cost of a weapon system. It should be noted that, while the Industry Advisory Group report proposed effecting all of these changes by statute, the illustrative bill language provided covers only the recommendation concerning high-level approval of a fixed-price development contract, locating authorization authority at the level of the Under Secretary of Defense for Acquisition. The illustrative bill also applies only to firm-fixed price contracts rather than to all fixed-price contract as appears to have been the Industry Advisory Group's intent.

DISCUSSION: The defense industry has had a legitimate complaint in this area. However, the kind of permanent legislation proposed by the Industry Advisory Group is an overreaction that would unduly limit the Department's ability to choose the procurement approach appropriate to the circumstances of an individual program. Moreover, one recommendation, namely, to "cost sharing", is so vague that, in the absence of specific implementing language, it is impossible to tell what really is intended or whether the proposal is practicable at all. Such inflexible legislative prescriptions would be especially unfortunate in view of recent actions taken by the Department aimed at satisfying the defense industry's concerns in this area. These include issuance in September and December 1987 respectively, of a Directive and an Under Secretary of Defense for Acquisition policy letter reaffirming that a cost-type contract is the appropriate means for executing a risky weapon system development program, initiation of a review of the Secretary of the Navy Instruction 4210.6 concerning major system acquisition aimed at identifying necessary changes, and more careful scrutiny by the Office of the Secretary of Defense during milestone and program reviews of the Services' choice of contract type. Both industry and Congress should give these actions sufficient time to show results before considering enactment of inflexible legislative prohibitions.

DOD POSITION: We do not agree with the Industry Advisory Group's recommendations. The legislation proposed would limit the Department's ability to select on a case-by-case basis the procurement approach best suited to the circumstances of an individual program, and is premature given recent actions taken by the Department to restore a better balance in this area.

DOD RECOMMENDATION: That the Defense Industry and Technology Subcommittee of the Senate Armed Services Committee take no action in this area. (211:314-315)

The Subcommittee also agreed to include in the hearing record Dr Costello's prepared statement (211:301-304). In his prepared statement, Dr Costello wrote: "In the area of contracting for development programs, our policy now favors and I am committed to minimizing the use of fixed-price contracts for development efforts" (211:303). In his summary remarks to the Subcommittee, Dr Costello said nothing about fixed-price development contracts.

During the question-and-answer period that followed Dr Costello's summary remarks, the Subcommittee members asked the witnesses about a variety of DoD acquisition management policies (211:334-350). The use of fixed-price development contracts was one of the policies discussed.

SENATOR NGAMAN. On some fixed-price contracts, we have had quite a bit of discussion in this advisory group as to the application or the applicability of that [sic] firm fixed-price or fixed-price type contracts to research and development activities. And that is something we are trying to get some handle on through our legislative effort.

Do you folks have thoughts as to when and in what circumstances it is appropriate to use a firm fixed-price or fixed-price type contract for R&D?

DR. COSTELLO. I always like to put people on the spot, and Larry knows that I am going to look to him now.

MR. GARRETT. Dr. Costello feels that this is a Navy question. We have looked at this, and I know that there are varying views on either side of the equation, Mr. Chairman.

As I testified earlier, even when I was the General Counsel to the Department, I was not wed to firm fixed-price contracts in R&D. I did not think it was necessarily a good idea.

And we have looked at this and I have talked to Dr. Costello about this subject. As a matter of fact, we altered our instruction yesterday. It came to me for signature. And we will not use that medium, per se.

But I still feel, and my views are that when the ---

SENATOR BINGAMAN. Tell me exactly what you did yesterday again?

MR. GARRETT. We had an instruction that basically directed that we would use that vehicle. And what we have done now is conformed the Navy's policy to that which was directed by Dr. Costello, and that is that we will use the appropriate vehicle under the appropriate circumstances.

And by that I mean I still think that there are times when a firm fixed-price contract may not be inappropriate. We have had a couple situations where we have gone before the Defense Acquisition Board.

I think the combat submarine system was an example where we agreed on a firm fixed-price incentive [sic] contract. It was a situation where both of the parties felt that the risks were sufficiently understood and that this was the proper vehicle.

That is not true in all cases. And so our position now is that they will be used only under the guidance that is presently in existence, and that is it will come through me, if we intend to use one, and then I must seek a waiver from Dr. Costello in the appropriate circumstances.

DR. COSTELLO. In the program that Mr. Garrett mentioned, there was first of all a cap on costs, with the ceiling price being adequate to perform the work required.

A couple of weeks ago we had one of our suppliers come in and make a presentation to the Armed Forces Policy Council. Larry and I happened to be there. He was describing a unique firm fixed-price contract. He would not take the contract any other way. That is a little bit different perspective.

SENATOR BINGAMAN. This was an R&D contract?

DR. COSTELLO. It was an R&D contract. It was done by DARPA. It was a prototype. He was Burt Rutan, and among his accomplishments; he built the Voyager aircraft that went around the world.

He also built an aircraft for DARPA, a revolutionary airplane called the Advanced Technology Tactical Transport. It involved lots of structural and material leading edge capability. The specification was 14 pages. The contract was less than 45 pages, including all the boiler plates.

He knew, and we knew exactly, what we wanted on a development program. In order to address his concern about burdensome oversight, he said I am going to take a fixed-price contract and you are going to stay out of my plant.

We did. It was a 2-year contract for \$2.5 million. The plane is flying today and has passed all of its performance criteria. He has had one auditor in his plant, and that was unnecessary.

In that type of program, if we had not gone with that type of contract vehicle, we would not have the airplane today and it probably would have cost at least twice as much.

MR. GARRETT. I think it came in under budget, ahead of schedule.

DR. COSTELLO. You have got to use management judgment. In some cases, and I appreciate the Navy's support, they have said yes, we cannot be hard over that. What had happened before was we were using no judgment in the other direction.

Jack, do you want to make any comments?

MR. WELCH. I think that the Air Force has tended to look at fixed-price incentive contracts. I do not believe we have ever really had a difficulty in terms of trying to get over to the firm fixed-price arena.

So far, since that directive has been in place, we have only had three occasions to look at, essentially, an approval. And two of those are in the fixed-price incentive arena. Only one in the fixed-price area.

But we too believe that there are real opportunities in the fixed-price incentive arena, and some appropriately in the firm fixed-price. But the right thing to do is to get the appropriate contract into the acquisition strategy at the front end and have it talked out, but not to try to prejudge.

DR. COSTELLO. The worst thing you can do is bankrupt your supplier. It costs you much more money to bring another one back into a position where he can contribute.

SENATOR BINGAMAN. I have some additional questions, but let me defer to Senator Wirth and let him make any initial statement he has, and then ask some of his questions.

SENATOR WIRTH. Thank you very much. Mr. Chairman, and I thank you all for being here. And again, Mr. Chairman, I want to commend you and the advisory committee on not only a good piece of work but the bravery in taking on this enormously ambitious project. (211:338-340)

After the acquisition executives from DoD completed their testimony, the next witness was Mr Derek J. Vander Schaaf, the DoD Deputy Inspector General (211:350).

The Subcommittee agreed to include Mr Vander Schaaf's comments on the IAG report in the hearing record (211:300,404-421). In his comments on the issue of shifting undue risk to the contractor, Mr Vander Schaaf referred to fixed-price development contracts.

SHIFTING UNDUE RISKS TO THE CONTRACTOR

The Industry Advisory Group contends that disregarding past failures of similar procurement methods, DoD is now employing procurement methods that shift unmeasurable risk to contractors in three different ways. First, contractors are being required to pay a portion of the development costs of DoD systems under a practice called "cost sharing". Second, contractors are being required to enter into fixed-price

contracts early in development. Third, contractors are being asked to provide DoD with priced production options before full scale development has begun. The Industry Advisory Group's solution calls for a general rule requiring that only cost type contracts be used for development. To enforce this general rule, they suggest that the concurrence of the Secretary of Defense be obtained before a fixed-price development contract is used. In addition, they stated that DoD should be prohibited from requiring contractors to provide fixed-price production options until after two years of initial production of the system. They proposed that "the language regarding fixed price development contracts in Sec. 8118 of the FY 88 Continuing Resolution should be strengthened and expanded to prohibit cost sharing and premature pricing of production options prior to the results of the development incorporated [sic] into permanent law."

We do not concur with the Industry Advisory Group's recommended solutions...The present policies are the product of years and years of open-ended commitments to development contracts which often resulted in substantial cost growth and major changes to the original scope of work.

It is not mandatory that development contracts be fixed price. In fact, Section 8118 of the FY 88 Appropriations Act prohibits the use of fixed price-type contracts for Major System Development in excess of \$10 million unless the USD(A) determines that program risk has been reduced to the extent that realistic pricing can occur and that the contract type permits equitable and sensible allocation of program risk between the contracting parties. Also, DoD Directive 5000.1, dated 1 September 1987, now states that contract type "...shall be consistent with all program characteristics including risk. Fixed price contracts are normally not appropriate for research and development phases." The Under Secretary of Defense for Acquisition has recently reiterated the regulatory guidance. Therefore, we believe that reenactment of the Section 8118 language is unnecessary. The proposed legislation would further reduce the authority of the contracting officer to choose the appropriate type of contract for each acquisition and would lengthen the acquisition process by requiring higher levels of approval prior to contract award. (211:408-409)

Mr Vander Schaaf also provided his prepared statement for the record (211:351-389). In his prepared statement, Mr Vander Schaaf addressed each section of S. 2254. His comments on section 2 of this Act, which concerns risk-sharing, referred to the division of risk and the selection of contract type.

The Department's policy on contract risk is in the Federal Acquisition Regulation and DoD Directive 5000.1, "Major and Non-Major Defense Acquisition Programs." The degree of

contract risk is unique to each acquisition of material or services and must be addressed in individual acquisition plans prepared by the program manager. Program managers are responsible for assessing and managing cost, schedule and performance risks in each phase of a major weapon system acquisition. The decisions made by program managers concerning the trade-offs between cost, performance and schedule in the development phase of a new weapon system, or the upgrading of an existing system, will determine the ultimate success of how well that weapon fulfills its intended mission. We must rely on the good judgment and experience of our program managers and contracting officers to make these decisions.

Likewise, the division of technical, cost, and schedule risk between the contractor and the Government should be negotiated on a case by case basis within broad guidelines. The variables of the risk equation of such things as the appropriate type of contract to be used must also be left to the good judgment of our contracting officers and their industry counterparts, within the general guidelines of the FAR. (211:363)

Mr Vander Schaaf's prepared statement also addressed section 3 of the Act, which deals with fixed-price development contracts,

This portion of the Bill would restrict the head of an agency from awarding a firm fixed-price contract in excess of \$10 million for development of a major system or subsystem unless the written approval of the Under Secretary of Defense for Acquisition had been obtained. The Under Secretary would have to include in his approval, a determination that the price was realistic and that risk was equitably and sensibly shared between the Government and the contractor.

The Bill is in general agreement with existing Department of Defense Directive (DoDD) 5000.1, "Major and Non-Major Defense Acquisition Program"; it is not mandatory that development contracts be fixed price. The directive states that contract type "...shall be consistent with all program characteristics including risk. Fixed-price contracts are normally not appropriate for research and development phases."

I don't believe there is a need for legislation on this issue since few development contracts are awarded as true firm fixed price contracts. Fixed price incentive contracts are appropriately used for development efforts on occasion. (211:367)

Mr Vander Schaaf began his testimony with a summary statement (211:351-359). In his summary statement, he spoke about both firm fixed-price and fixed-price incentive development contracts.

With regard to the limitation you proposed on fixed-price development contracts, your limitation is actually very much in agreement with DoD policy. DoD Directive 5000.1 says, and I quote. "Fixed-price contracts are normally not appropriate for research and development phases."

Actually, the Department uses very few truly fixed-price contracts in research and development. We do use fixed-price incentive contracts in R&D and those are appropriate on occasion.

Therefore, I would suggest that you not necessarily include that in the legislation. I think the guidance is right, I think the testimony you heard earlier this afternoon would indicate that the Department understands the position of Congress and the industry with respect to allocating risk, and that you need not try to legislate that.

SENATOR BINGAMAN. So your suggestion is that the provision we have in under section 3 is not needed?

MR. VANDER SCHAAF. That is correct. I would say it is not needed.

I understand there is some difficulty, and I am not very familiar with a provision in an appropriations act which restricts even the use of incentive fixed-price contracts. I think it is inappropriate, to restrict use of fixed-price incentive contracts.

You have to look at what the Department wants to have developed before the type of contract is selected. If we want to develop a new truck, it is a relatively low risk.

To limit the amount of resources we want to devote to development of a new truck, it is appropriate to use a fixed-price incentive contract. For example, the Department could set the development cost at \$10 million as a target price, set a share line and put a ceiling price maybe at \$12 or \$13 million and set a share line according to the risk. It is appropriate in that circumstance to use a fixed-price incentive contract.

On the other hand, it would certainly not be very appropriate to use a truly fixed-price contract where we have one price and that is the end of it when we are trying to develop a very high risk, esoteric, and entirely new weapon system.

So that is where I am coming from on that. We would suggest that you do not need legislation unless you want to use that legislation to somehow amend the provision that appears in the appropriations act that I referred to.

I am not familiar, personally familiar, with that provision. But I understand it exists and will provide details for the record.

[The information follows:]

The legislation referred to by Mr. Vander Schaaf is Sec. 8118 8118, the "Department of Defense Appropriations Act, 1988", found in Public Law 100-202, Making Further Continuing Appropriations For The Fiscal Year Ending September 30, 1988. (211:352-353)

Mr Vander Schaaf completed his summary statement and answered questions from the Subcommittee (211:422-430).

The last group of witnesses, the panel of industry executives, was called forward. The witnesses from industry were Mr William C. Purple, Executive Vice President of Allied-Signal Incorporated and Chairman of the Board of Governors of the Aerospace Industries Association of America (AIA); Mr Harvey D. Kushner, President of the ORI Group and Vice Chairman of the National Security Industrial Association's (NSIA) Board of Trustees; and, Mr Jerome Kwiatkowski, President of Corvus Corporation (211:430). Two of the witnesses provided prepared statements for the hearing record (211:433-441,465-471).

Mr Purple was the first industry witness to testify. He provided his prepared and summary statement to the Subcommittee (211:430-432). His prepared and summary statements began by explaining the importance of the issues which the hearing addressed. This explanation was a useful preamble to the presentation of the industry panel's testimony. The following is the introduction from the prepared statement:

The issues being addressed in these hearings are very important to our nation's long term defense capabilities because:

- o The U.S. national security strategy has long been predicated on maintaining technological superiority over all potential adversaries -- the so-called "High Tech" strategy;
- o Our nation's position as the world's technology leader is being challenged;
- o Our national leadership has fostered a strong and financially viable aerospace and defense industry; and should maintain policies that will encourage industry to invest in and vigorously pursue technologies for the future.

Together, these fundamentals can provide for a strong national defense, and can keep America in a position of world leadership. We are justifiably proud that the U.S. aerospace industry is the best in the world, and we believe that it is essential to retain that position. Congress and the

Administration must support a strong national R&D program that provides for national defense in both the long and short term. It is particularly important now that they address the problem responsibly in view of the current budget problems and international situation. (211:433-434)

Then Mr Purple's prepared statement discussed two recent studies which examined the erosion of U.S. technological superiority.

The past few years have brought some deep and disturbing trends which indicate a serious erosion of these fundamental strengths. These were serious enough to cause industry to sponsor two major studies, both released in the past few months. One, which was performed by the MAC Group, a Cambridge, Massachusetts based international consulting firm, addressed the near-term financial impact on the industry of recent government policy changes. The other looked at long-term key technologies which will determine future system capabilities...I have reviewed the MAC Group's report and am very concerned that, unless corrective actions are taken by the government, industry will be forced to: reduce R&D; reduce its investment for productivity enhancement and modernization; and, reduce risk by using low-technology alternatives. I am also concerned that competition will be reduced as companies take exception to objectionable contract terms and conditions that, in effect, make winning defense contracts a losing proposition. (211:434-435)

After summarizing the findings of the long-term key technologies study, Mr Purple's prepared statement presented AIA's comments concerning each section of S. 2254. The comments on section 3 of the Act are as follows:

This section of the legislation deals with the subject of fixed-price development contracts. As you know, the Undersecretary of Defense for Acquisition has recently issued two directives to the military departments restricting the use of such contracts. We applaud Dr. Costello's efforts in this regard. However, I am quite concerned that some activities may continue on a "business as usual" course of shifting undue risk to industry. We must reluctantly conclude the legislation is necessary in this area in order to clarify Congressional intent and to provide support for the Undersecretary's policy on fixed-price development contracts.

We make one recommendation-- that the language be adjusted to reflect current policy which prohibits "fixed-price contracts" for research and development. Fixed-price incentive contracts with low ceilings transfer virtually the same risks to the contractor as firm fixed-price

contracts, yet would not be discouraged under this legislation. (211:437)

In his summary statement which he gave the Subcommittee, Mr Purple high-lighted many of the points given above from the prepared statement (211:430-432). After Mr Purple finished his summary statement, the next industry witness, Mr Harvey Kushner, gave his testimony.

Before beginning his summary statement, Mr Kushner provided a letter with comments on the IAG report from the National Security Industrial Association (NSIA) and asked that this letter be made a part of the record (211:443-456). In its comments on the issue of conflict between profit and investment policy, the NSIA addressed the use of fixed-price development contracts.

One of the fundamental concepts of the American economic system is that profit is the reward for the assumption of risk. In recent years, we have witnessed too many instances where contractors were pressured to accept fixed price contracts for effort which was truly developmental in nature. In some of these cases, the risk was so great that the contractor suffered enormous losses and will never recover sufficiently to conclude that acceptance of the fixed price contract was worthwhile. In such cases even a normal level of profit on all other work may not be sufficient to right the balance and provide the funds needed to invest in new technology and new equipment and facilities. (211:447)

Mr Kushner then presented his summary statement (211:452,457-458). This statement had comments on the use of fixed-price development contracts.

MR. KUSHNER. Just a couple of comments on section 3 of the legislation, on the issue of fixed-price contracting. When we talk about fixed-price contracting for research and development and for early development, the basic issue is that of the use of inappropriate forms of contracting methods. It is simply inappropriate to use fixed-price contract methods, whatever dollar threshold you set and whatever you call the procurement.

You have heard some comments earlier today that alluded to some other types of contracts, such as fixed-price-incentive contracting, which perhaps implied that such contracts are something quite different and do not have the same potential impact as the fixed-price contract form.

It seems to me what that really suggests is the importance of defining language for the issue of fixed-price contracting. To make clear when it is inappropriate, is very important and ought to be addressed before the bill is finalized.

There is other language that describes contracting forms that perhaps leads to the same bad conclusion, but it sounds like it is something else... (211:457)

After Mr Kushner finished his summary statement, the Subcommittee called Mr Jerome Kwiatkowski, the last witness with the industry panel (211:458).

Mr Kwiatkowski provided a prepared statement for the hearing record in which he commented on the provisions of S. 2254 (211:465-471). Part of these comments addressed the use of fixed-price type contracts for development effort.

Obviously, attempting to carry out sophisticated research and development under such risk-adverse conditions is not good for Corvus or the government.

Getting rid of firm, fixed-price development contracts is a good step. But the \$10 million threshold in S. 2254 will not help Corvus or other small companies. Since I have the same risks in undertaking a firm, fixed-price development contract as large contractors, I respectfully urge the Subcommittee to extend the bill's restriction to all firm, fixed-price development contracts across-the-board. (211:467-468)

In his summary statement, Mr Kwiatkowski addressed a variety of issues which affect small businesses in their dealings with the DoD. One of them was fixed-price development contracts.

The key provisions that have a tremendous impact on us are the integrated financing policy, limitations on the use of fixed-price development contracts, uncompensated overtime--and the provisions on the foreign selling cost have a lot of importance to a lot of members of AEA [American Electronics Association], but not particularly Corvus yet today because it is too expensive to do, and I cannot find the money to do it. If I want to continue growing, I put the money in my business...

I am being asked--I am not being asked; I am doing this today in my business. I am agreeing to firm fixed-price contracts for research and development. We actually have them in house.

I do not care what somebody else says, that it is a rare occasion. I think you will find it very predominant at the

small business level. It is the easiest way to get rid of us little guys or something. I do not know what the reason is... (211:459)

Mr Kwiatkowski then discussed uncompensated overtime and progress payments, before returning to the issue of fixed-price development contracts and his recommendations for change.

Attempting to carry out this sophisticated research and development under risk adverse conditions is not good for Corvus or the Government. Getting rid of firm fixed-price development contracts is a good step.

But the \$10 million threshold that you have defined will not help Corvus or other small companies, since I have the same risks undertaking a firm fixed-price development contract as large contractors. I respectfully urge the subcommittee to extend the bill's restrictions to all firm fixed-price development contracts across the board, no dollar limitation.

Mine are typically in the \$200,000, \$500,000, \$1 million R&D. If you work with the various service laboratories, these are the kind of contracts we are talking about in the small business community. So \$10 million--you are going in the right direction. Please keep going... (211:460)

Mr Kwiatkowski then discussed the Competition in Contracting Act, the MAC Group Study, and duplicative audits. His last reference to fixed-price development contracts was within the context of contract risk.

Contract risk--small business has it all. If we do not perform we are out of business.

I gave you my comments on the limitations on use of fixed-price contracts for development. The little guy has all the risks and it is still fixed-price. Please, reduce the dollar number to a dollar, whatever it is. (211:459,460,463)

Mr Kwiatkowski went on to discuss other issues before finishing his summary statement.

The Subcommittee ended the hearing with a question-and-answer session in which three topics were discussed (211:472-477). Of the these three topics, fixed-price development contracts received the most attention.

SENATOR BINGAMAN. The proposal we have here is to say that an agency may not award firm fixed-price contracts in excess of \$10 million for the development of a major system or

subsystem of a major system, unless the Under Secretary of Defense for Acquisition determines in writing, and then we set out what he has got to say.

Mr. Kwiatkowski, you are saying, let us lower that \$10 million thing. You heard the earlier testimony that there are circumstances in which firm fixed-price contracts are appropriate for R&D, or at least that was what Dr. Costello argued.

If you assume that that is true, how do we set up a system? We cannot have Dr. Costello having to sign off on a \$200,000 contract that someone wants to let on a firm fixed-price basis.

I mean, it seems to me that we have not come up with the right mechanism to bring it down to the level that would be very helpful to you, and I would be interested in your suggestion as to how we do that.

MR. KWIATKOWSKI. The problem appears to be the definition of the words "research and development." Everything we do for the various service laboratories is under research and development categories - 62, 63 categories of FYDP [Five Year Defense Plan] money.

Building a truck, to me, does not sound like a real risky development job. But all the things we do for the laboratories has [sic] a lot more risk. We do not build trucks for labs.

We do not take an airplane that has already been built from somebody else and do a fixed-price contract for modifications to it.

I do not consider those development jobs. I do not consider those high technology. So I do not have a quick answer.

SENATOR BINGAMAN. But I guess we are agreed that, regardless of the size of the contract, we are talking about the need for some mechanism to permit the use of firm fixed-price contracts where they are appropriate.

MR. KWIATKOWSKI. Yes.

SENATOR BINGAMAN. But not to have a requirement that they be used.

MR. KWIATKOWSKI. Everything you described did not sound to me like a research and development effort.

SENATOR BINGAMAN. Right.

MR. KWIATKOWSKI. So they did not fit that category or were appropriate for that category.

The other language you have in there is that we do not get involved in major weapons systems or sub-assemblies, the small business community, us \$5, \$10, \$15, \$20 million contractors. So we are doing technology forefront work. We are doing development work. We are integrating unique, one of a kind specials, two, three, or four systems. So there is a difference, and we think we are doing development.

MR. PURPLE. What I was going to say, Mr. Chairman, and it fits I think with what you are saying, the requirement to meet a firm specification with research and development required to achieve that specification is where you have the high risk of achieving the fixed-price dollars, regardless of whether it is small, large, \$1 or \$10 million.

You can lose as much on \$1 as you can on \$100 million. You can find yourself trying to meet a specification, a firm specification - this table shall be absolutely level - for \$100. Well, guess what; it might cost me \$100 million to make this table absolutely level.

The word "specification," if it is firm, if it is so hard-over as to what it is, then you have a tremendous risk of getting there. And that is where you have that problem.

If, however, it is a goal, develop a new material, develop something else, try to get a solid state power amplifier that will form a certain power output, et cetera, et cetera, that is your goal. Try to accomplish that in a year, put so many dollars into that goal being accomplished.

That can be fixed-price. That is not a risk because you do not have a firm specification. It is not yet going into operation in a tank or in an airplane or whatever, the R&D is being performed at that point for an experimental system.

When he mentioned Rutan, I think a little earlier, about that contract he had, I have not seen the contract, but I would be willing to bet that is not a firm hard-over specification to meet, an end fighting machine.

Whatever it is he is going to do, it is an experimental device to see if it might meet the following specifications, and it is not going to be as hard on him as it is a firm fixed-price development of something to a hard specification for battlefield use.

There is an entirely different spectrum in that kind of definition.

Also, we would take issue with the fixed-price incentive versus fixed-price. These are identical contracts in our book, and the reason that they are identical is when you bid competitively to do that work, to meet a firm specification, what industry does, is look at the firm fixed-price.

Everybody competes, and then the risk is if you run over that in order to get it with R&D involved in it, you are in trouble.

If you drop it down a notch to fixed-price-incentive, which means there is a level called a target price and then there is a barrier, a boundary above which you could run another 20 percent over, then you share that with the Government - what are you really doing?

You are saying: Okay, I will take it at the target price and I will put a 5-percent profit on it and hope I can do it for that and if I run over and share it 80/20 for another 20 percent, it would cost me 20 percent on a share basis, which is 4 percent.

I would still make a 1-percent profit on the job. Therefore, I will go ahead and bid the job, but I will bid it at the total price at which I will take the risk and still break even on the R&D total dollars.

My risk is still above that number. It is not in the level between. All you have done by shifting between straight fixed-price and fixed-price incentive is change the amount of profit you are willing to take. But it does not cover you for the fact you are going to overrun after that.

That boundary does not protect industry that much.

SENATOR BINGAMAN. Mr. Kushner, do you have a comment on this firm fixed-price problem?

MR. KUSHNER. Well, I would like to really go back to what I said earlier. I think it is a very important issue. I think it ought to be addressed.

I do not think it is easy to do it legislatively, but I think it is worth a try. And the reason it is not easy to do is because, as you have just heard us say, the definitions that are required to nail down what you mean by either a fixed-price contract, or fixed-price-incentive contracts, or the applications of such fixed-price contracts require a lot more work than the bill, as it reads, demonstrates has gone into explaining it.

Jerome Kwiatkowski alluded to one of the problems being the source of the money to fund such contracts. There are research and development funds that are not used to buy research "products" but to buy off-the-shelf products or products that are relatively well defined to be used in research and development programs that are perfectly amenable to a fixed-price contract.

On the other hand, when you are trying to push the technology to its limits, when there is a specification that says, this is what I would like to have, you very often have no idea what it is really going to cost until you get to the end.

I think a lot more work is needed and it deserves your attention. It is a serious, serious problem for us. You heard earlier in testimony that on a major contract the two competing contractors were asked if they thought a fixed-price contract was appropriate and they agreed.

My company was one of the participants in that particular contract, and I do not remember anybody ever giving us a choice. It may sound that way at the Secretary level, but it sure is not true when you get down to the contracting level, when you are told what you have to do if you want to play in the game. (211:474-476)

At the end of the hearing, the Subcommittee issued almost fifty questions for the record for which written responses were requested (211:477-494). One of these questions concerned fixed-price development contracts.

SENATOR BINGAMAN. Last year's continuing resolution requires your approval on "fixed-price type" development contracts in excess of \$10 million. S. 2254 generally restates this requirement, but limits it to "firm-fixed price contracts." If the limitation were to be applied to all fixed-price type development contracts, how many actions would likely be presented to the Under Secretary in any one year? If you were to choose between the two statutory formulations which would you pick and why?

DR. COSTELLO. We have had too little experience with this requirement to be able to provide the requested estimate with any confidence. To date, i.e., by mid-April, we have received seven such requests under a law that has been in effect for less than 4 months. If this pattern were to continue, the number of requests in a year would fall somewhere between twenty and thirty. We do not support either statutory formulation since we believe that the statute's goal, namely, ensuring choice of the contract type appropriate to the circumstances of each individual development program, can best be accomplished by careful administrative oversight without legislation. However, if required to choose between the two alternatives described, we believe the requirement for approval should apply to all fixed-price contracts. Any fixed-price-incentive contract becomes firm fixed price above the ceiling amount. There is, therefore, little logical basis for requiring high-level OSD approval for the latter but not for the former. Moreover, by manipulating the share ratio between government and contractor and the ceiling price percentage on a fixed-price-incentive contract, such a contract can be made to operate almost like a firm-fixed-price one even below the ceiling price. Hence, a law whose application is limited to firm-fixed-price contracts could encourage subterfuge and circumvention. (211:482-483)

Thursday, 14 April 1988

The hearing for DoD acquisition policies and management took place on this day. Three groups of witnesses appeared before the Subcommittee (211:495-496). The first set of witnesses to give testimony were from the General Accounting Office (GAO). These witnesses were Mr Paul Math, Associate Director of the GAO's National Security and International Affairs Division and Mr Mike Motley, an Associate Director in the GAO's Research, Development, and Acquisition Group (211:496). The Subcommittee included in the hearing record the witnesses' comments on the IAG report (211:506-526). By letter of transmittal, the GAO had submitted its comments on all 20 issue papers to the SASC (211:506). In its response to the issue on shifting undue risk to the contractor, the GAO addressed fixed-price development contracts.

Issue Identified by Advisory Group

Disregarding the lessons learned from failures of similar procurement methods in the past, the DOD is now employing procurement methods which shift unmeasurable risks to contractors in three different ways. First, contractors are being required to pay a portion, sometimes substantial, of the development cost of Defense Department systems under a practice called "cost sharing". Second, contractors are being required to enter into fixed-price contracts early in development, when the uncertainty is so substantial that it is virtually impossible to know the precise costs of the new systems. Third, contractors are being asked to provide the Defense Department with priced production options before full scale development has begun. A recent policy letter issued by the Under Secretary of Defense (Acquisition) recognizes the second problem and proposes to change DOD policy on this subject. All of these requirements shift undue risk to the contractor, drain industry resource from investments in technology and productivity, and will ultimately affect our nation's ability to maintain technological superiority.

Advisory Group Proposed Solution

As a general rule, only cost-type contracts should be used for development. In order to enforce this, the concurrence of the Secretary of Defense should be obtained before a fixed-price development contract is used.

DOD should be prohibited from requiring contractors to provide fixed price production options until after two years of initial production of the system.

As a minimum, the language regarding fixed price development contracts in Sec. 8118 of the FY 88 Continuing Resolution should be strengthened and expanded to prohibit cost sharing and premature pricing of production options prior to the results of development efforts. This change should be incorporated into permanent law.

GAO Comments

We agree that fixed price contracts should generally not be used for systems (1) which are early in the development phase and (2) for which considerable cost uncertainty exists. The fiscal year 1988 Defense Appropriations Act includes a change which should correct inappropriate use of fixed price contracts. The change permits the use of fixed price contracts for high value systems only when the Under Secretary of Defense for Acquisition determines that realistic pricing can occur and equitable risk exists between the government and the contractor.

We are unable to comment further on the identified issues. Without having data available, it is not clear that the changes discussed are significant enough to justify regulatory or legislative change... (211:515)

The Subcommittee also included Mr Math's prepared statement in the hearing record. His statement addressed each section of S. 2254, including the section on fixed-price development contracts.

The bill limits the use of fixed-price contracts for development efforts. We agree that fixed-price contracts should generally not be used in the development phase or when considerable cost uncertainty exists. Procurement regulations have long required contracting officers to negotiate a contract type and price that will reasonably reimburse contractor risk while protecting the government and providing the contractor the greatest incentive for efficient and economical performance.

In addition, the fiscal year 1988 Defense Appropriation Act restricts DOD's use of fixed-price development contracts and requires approval by the Under Secretary of Defense (Acquisition) when used. In September 1987, DOD revised its regulations to provide that contract selection "...shall be consistent with all program characteristics including risk. Fixed-price contracts are normally not appropriate for research and development phases. For such efforts, a cost-reimbursable contract is preferable because it permits an equitable and sensible allocation of program risk between the contracting parties." The Under Secretary reiterated this policy in a December 1987 memorandum.

It appears that DOD actions are addressing the intent of the bill's provision. (211:500-501)

In his summary statement, Mr Math addressed the major areas covered by S. 2254. Mr Math commented on fixed-price development contracts while discussing one of these areas.

The proposed bill also limits the use of fixed-price contracts for development efforts. We agree that fixed-price contracts should generally not be used in the development phase or when considerable cost uncertainty exists. In September 1987, the DOD revised its regulations to state that fixed-price contracts are normally not appropriate for research and development phases. The Under Secretary reiterated this policy in December 1987.

It appears that DOD's actions are addressing the intent of the bill's provisions. (211:497)

After finishing his summary statement, Mr Math answered the Subcommittee's questions about duplication of oversight activities, alternative personnel systems, and uncompensated overtime

(211:526-532). No discussion took place about fixed-price development contracts. The GAO witnesses concluded their testimony and another group of witnesses was called forward.

The second group of witnesses were experts who had studied the impact of procurement policy changes on the defense industry (211:532). These witnesses were Professor Robert N. Anthony of the Harvard Business School; Mr Jeffrey H. Joseph, Vice President for Domestic Policy of the U.S. Chamber of Commerce; and, Mr Joseph Campbell, a Vice President of the Paine Webber Group. Each of these witnesses presented statements to the Subcommittee.

In his prepared and summary statements, Professor Anthony gave a brief background of the MAC Group Study and described its quantitative analysis (211:532-541). The analysis examined the effect of six policy changes on industry profitability and financing requirements (211:537). The use of fixed-price development contracts was not a part of this analysis and, therefore, was not discussed (211:533).

Mr Joseph also gave prepared and summary statements to the Subcommittee (211:541-549). In both of these statements, he described the Chamber's Survey on Federal Government Procurement Policy. This survey was distributed to 10,000 federal government contractors in November of 1987 (211:545). The purpose was to measure the impact on industry of recent procurement policy changes (211:542). Mr Joseph also described the results of this survey for the Subcommittee. His prepared statement reviewed the procurement policies whose unfavorable outcomes were affecting industry.

Reductions in progress payments, requirements for up-front financing for special tooling and test equipment, revised profit policy, cost sharing on major systems development, and the routine use of fixed-price type contracts for development work have led to a serious drain on industry resources. This

has resulted in an economic environment that has had a disproportionate effect on subcontractors and small businesses that are the foundation of our defense industrial base. These resources otherwise could have been of greater benefit to the nation. (211:545)

The prepared statement briefly described the survey's methodology before giving the major findings.

A major finding of the survey is that more than 50 percent of the respondents who provided goods or services to DoD indicated that, in the future, their companies will curtail investment in capital equipment and research and development. This is particularly dramatic when compared to the finding that, over the past three years, 74 percent of these companies had increased these investments. Clearly, the shift in financial risk is just beginning to have an adverse impact at the "grass-roots" level. (211:546)

The statement then gave the causes of this projected investment decline, one of which was the use of fixed-price contracts.

The respondents primarily attributed the projected reduction in future investments to a combination of pressures on profit margins, lack of financing resources, program instability, excessive government oversight, and the availability of better opportunities in commercial markets. In fact, 42 percent indicated that they actually experienced a decrease in profitability on their government sales over the past five years. Other policies cited included government use of fixed-price type research and development contracts, required up-front capital investments, and potential loss of technical data rights.

These findings suggest there is a fundamental imbalance in the financial equation of risk and reward. This condition is being felt particularly by subcontractors and small businesses. (211:546-547)

The prepared statement concluded with recommendations to strengthen three of the sections in S. 2254. One of these was the section on fixed-price development contracts.

Section 3. Limitations on Use of Fixed-Price Development Contracts - The Chamber believes that this highly desirable section should be strengthened. Specifically, the after-the-fact reporting of the use of fixed-price type development contracts, will not provide a sufficient deterrent to inappropriate practice. We suggest instead that the Under Secretary for Acquisition be required to seek public comment prior to granting any waivers. The Chamber suggests that the

provision codify current DOD policy that applies to all fixed-price type contracts in lieu of firm fixed-price contracts. (211:548)

After Mr Joseph finished his summary statement, the last witness of the second panel, Mr Campbell, presented his testimony. He gave the Subcommittee a summary statement in which he described the concerns which the investment banking community has about the defense industry (211:570-581). The use of fixed-price development contracts was not discussed. Mr Campbell completed his summary statement, and the last witness came forward.

The final witness was Mr John D. Rittenhouse, Senior Vice President of General Electric Aerospace and Chairman of the Ad Hoc Defense Industry Advisory Group. In his prepared statement, Mr Rittenhouse reviewed the work of the IAG and then commented on the provisions of S. 2254, one of which deals with the use of fixed-price development contracts. He discussed this section in the context of the defense industry's ability to support a technologically superior force structure.

The United States is dedicated to a technologically superior, reliable force structure. Maintaining this superiority is vital to our national interest, since the alternative would be to attempt to field a numerically superior force, a clearly impossible task.

Another welcome feature of this bill is that it would clarify previous limitations on the use of fixed-price development contracts. This type of contract does the nation a disservice. It fails to take into account the cost and design changes which inevitably occur during major system development.

Requiring a contractor to commit himself to a price for something that hasn't been invented is neither sound business practice for the contractor, nor is it the lower-cost development for the government it is perceived to be. The end result is less technological risk taking - an approach from which we'll reap what we sow - a gradually degrading technological edge. (211:586)

His summary statement also addressed fixed-price contracts in much the same terms (211:583) .

The United States, after all, is dedicated to a technologically superior reliable force structure. Maintaining this superiority is vital to our national security, and it is intimately involved with the financing of the industry.

Another welcome feature of this bill is that it would clarify some previous limitations on the use of fixed-price development contracts. This type of contract does the Nation a disservice.

It fails to take into account the cost and design changes which result during major system development. Requiring a contractor to commit himself to a price for something that has not been invented is neither sound business for the contractor, nor is it the lowest cost approach for the Government that it is perceived to be.

The end result is less technological risk-taking, an approach from which we will reap what we sow, a gradually degrading technological edge. (211:583)

In the question-and-answer session that followed Mr Rittenhouse's summary statement, five areas were discussed (211:587-592). One of the five was the use of fixed-price development contracts.

SENATOR BINGAMAN. Okay. In section 3 of this bill, we have this provision that the head of an agency may not award a firm fixed-price contract in excess of \$10 million for development of a major system or subsystem, unless the Secretary of Defense for Acquisition determines in writing a series of things.

Yesterday, Mr. Kwiatkowski, who has a small firm that does research and development for the Department of Defense, was testifying that that does not do him much good. That he is more worried about a \$200,000 contract than he is a \$10 million. And why do we not do something to solve his problem? Because in fact he is being held to firm fixed-price contracts just as the larger firms are.

Is it essential that we try to do something about that problem too? And if so, what?

MR. RITTENHOUSE. Well, I would certainly try to do something about the problem. I do not have any instantaneous cures to that. That is a tough one. And the reason it is tough is the reason we recommended raising the value of the contract that is reviewed.

Originally it was \$10 million, we talked about \$40 million. The reason for that is really the art of the possible.

If we want the Under Secretary of Acquisition to really review indepth whether or not a contract should be fixed-price, its risk profile and that sort of thing, I think you have to be realistic about the number of contracts the man

has to go through. He has a few other things to do in life besides just reviewing fixed-price contracts.

When you get down to the \$200,000 level, clearly asking the Under Secretary of Acquisition to review those is out of the question. There are just too many of them, that is an impossible implementation. There may be other routes. Certainly we could take that as an action item.

I do want to add that one of many things that I learned out of serving with you was the differing viewpoints of the subcontractor and subtier and component suppliers. That was an extremely valuable experience, I think, to many of us big weapon systems suppliers.

And the thing I would reinforce there is the jugular issue of rights and technical data and that sort of thing, which we have made some progress on for those people.

But with respect to treating the fixed-price nature of the smaller guy, that is something that I think we would have to look at. I do not have any bright ideas because of the sheer magnitude of how to administrate that. (211:590-591)

After the question-and-answer session was completed, the Subcommittee did not give the witnesses any questions for the record and the hearing was adjourned.

Bibliography

Books, Reports, Regulations, and Periodical Sources

1. A Discourse upon the Exposicion & Understandinge of Statutes with Sir Thomas Egerton's Additions. Edited from manuscripts by Samuel E. Thorne. San Marino CA: Huntington Library, 1942.
2. Anthony, Robert A. and others. The Impact on Defense Industrial Capability of Changes in Procurement and Tax Policy 1984-1987. Washington: MAC Group, February, 1988.
3. Aristotle. "Rhetoric," The Complete Works of Aristotle: The Revised Oxford Translation, Volume 2, edited by Jonathan Barnes. Princeton: Princeton University Press, 1984 (2152-2269).
4. Batson, Dr Robert G. "Cost Risk Analysis Methodology: A State-of-the-Art Review," National Estimator, 8: 21-49 (Spring 1989).
5. Benoit, Donald G. and others. Contract Administration: Volume 1. Gunter AFS AL: Extension Course Institute, 1980.
6. Blackstone, Sir William. Commentaries on the Laws of England: Volume I (Facsimile of the 1783 edition). New York: Garland Publishing, Incorporated, 1978.
7. Bledsoe, Edwin P. and Harry I. Ravitz. "The Evolution of Research and Development as a Procurement Function of the Federal Government," The Federal Bar Journal, 17: 189-215 (July-September 1957) as reprinted in Yearbook of Procurement Articles, 1, edited by John Wm. Whelan. Washington: Federal Publications, 1966 (441-469).
8. Broden, Jr, Thomas F. "Congressional Committee Reports: Their Role and History," Notre Dame Lawyer, 33: 209-237 (Spring 1958).
9. Bruncken, Ernest. "Interpretation of the Written Law," Yale Law Journal, 25: 129-140 (December 1915).
10. Carro, Jorge L. and Andrew R. Brann. "Use of Legislative Histories by the Supreme Court: A Statistical Analysis," Journal of Legislation, 9: 282-303 (Summer 1982).
11. Chamberlain, J. P. "The Courts and Committee Reports," University of Chicago Law Review, 1: 81-87 (May 1933).
12. Cibinic, Jr, John and Ralph C. Nash, Jr. Formation of Government Contracts (Second Edition). Washington: George Washington University, 1986.

13. Clark, Charles E. "Special Problems in Drafting and Interpreting Procedural Codes and Rules," Vanderbilt Law Review, 3: 493-508 (April 1950).
14. Code of Federal Regulations: Federal Acquisition Regulations System. Title 48, Chapter 1 (Parts 1 to 51) Revised as of 1 October 1987. Washington: Office of the Federal Register of the National Archives and Records Administration, 1987, Distributed by the Government Printing Office.
15. Cohen, Julius. "Judicial 'Legisputation' and the Dimensions of Legislative Meaning," Indiana Law Journal, 36: 414-423 (Summer 1961)
16. -----. "Towards Realism in Legisprudence," Yale Law Review, 59: 886-897 (April 1950).
17. Cohen, Morris L. and Robert C Berring. How to Find the Law. St. Paul: West Publishing Company, 1983.
18. Columbia Encyclopedia (Third Edition), edited by William Bridgwater and Seymore Kurtz. New York: Columbia University Press, 1963.
19. Corry, J.A. "Administrative Law and the Interpretation of Statutes," University of Toronto Law Journal, 1: 286-312 (Lent Term 1936).
20. -----. "The Use of Legislative History in the Interpretation of Statutes," Canadian Bar Review, 32: 624-637 (June/July 1954).
21. Cox, Archibald. "Judge Learned Hand and the Interpretation of Statutes," Harvard Law Review, 60: 370-393 (February 1947).
22. Curtis, Charles P. "A Better Theory of Legal Interpretation", Vanderbilt Law Review, 3: 407-437 (April 1950).
23. Davies, D. J. Llewelyn. "The Interpretation of Statutes in the Light of their Policy by the English Courts," Columbia Law Review, 35: 519-534 (April 1935).
24. Davies, Jack. Legislative Law and Process in a Nutshell (Second Edition). St Paul: West Publishing Company, 1986.
25. Defense Systems Management College. Risk Assessment Techniques: A Handbook for Program Management Personnel (First Edition). Washington: Government Printing Office, 1983.
26. -----. Risk Management: Concepts and Guidance. Washington: Government Printing Office, 1983.
27. Department of Defense. Defense Acquisition Circular Number 88-4. Washington: Government Printing Office (31 January 1989).

28. -----. Major and Non-Major Defense Acquisition Programs. DoDD 5000.1. Washington: Government Printing Office (1 September 1987).

29. de Sloovere, Frederick J. "Contextual Interpretation of Statutes," Fordham Law Review, 5: 219-239 (May 1936).

30. -----. "Extrinsic Aids in the Interpretation of Statutes," University of Pennsylvania Law Review, 88: 527-555 (March 1940).

31. -----. "Preliminary Questions in Statutory Interpretation," New York University Law Quarterly Review, 9: 407-428 (June 1932).

32. -----. "Steps in the Process of Interpreting Statutes," New York University Law Quarterly Review, 10: 1-24 (September 1932).

33. -----. "Textual Interpretation of Statutes," New York University Law Quarterly Review, 11: 538-559 (June 1934).

34. -----. "The Equity and Reason of a Statute," Cornell Law Quarterly, 21: 591-613 (June 1936).

35. Dickerson, Reed. "The Diseases of Legislative Language," Harvard Journal on Legislation, 1: 5-15 (January 1964).

36. -----. The Interpretation and Application of Statutes. Boston: Little, Brown and Company, 1975.

37. Emerson, Robert K. and Frank L. Fuller, III. "How to Find and Use Legislative Materials," West Virginia Law Quarterly, 51: 169-185 (Spring 1949).

38. Eskridge, Jr, William N. and Philip P. Frickey. Cases and Materials on Legislation: Statutes and the Creation of Public Policy. St Paul: West Publishing Company, 1988.

39. Executive Office of the President, Office of Management and Budget. Budget of the United States Government, 1989--Appendix. Washington: Government Printing Office, 1988.

40. Finley, Elizabeth. "Crystal Gazing: The Problem of Legislative History," American Bar Association Journal, 45: 1281-1284 (December 1959).

41. Fisher, Jr, Glendon M. and William J. Harbison. "Trends in the Use of Extrinsic Aids in Statutory Interpretation," Vanderbilt Law Review, 3: 586-596 (April 1950).

42. Folsom, Gwendolyn B. Legislative History: Research for the Interpretation of Laws. Littleton CO: Fred B. Rothman and Company, 1979.

43. Fox, J. Ronald. Arming America. Cambridge: Harvard University Press, 1974.

44. -----. The Defense Management Challenge: Weapons Acquisition. Boston: Harvard Business School Press, 1988.

45. Frank, Jerome. "Words and Music: Some Remarks on Statutory Interpretation," Columbia Law Review, 47: 1259-1278 (December 1947).

46. Frankfurter, Felix. "A Symposium on Statutory Construction: Forward," Vanderbilt Law Review, 3: 365-368 (April 1950).

47. -----. "Some Reflections on the Reading of Statutes," Columbia Law Review, 47: 527-546 (May 1947).

48. Frankham, Markley. "Some Comments Concerning the Use of Legislative Debates and Committee Reports in Statutory Interpretation," Brooklyn Law Review, 2: 173-179 (May 1933).

49. Freund, Ernst. "Interpretation of Statutes," University of Pennsylvania Law Review, 65: 207-231 (January 1917).

50. -----. "The Use of Indefinite Terms in Statutes," Yale Law Journal, 30: 437-455 (March 1921).

51. Gibson, James L. and others. Organizations: Behavior, Structure, Processes (Sixth h0Edition). Plano TX: Business Publications, Incorporated, 1988.

52. Guide to Legislative Research and Drafting. Chicago: American Bar Association, 1979.

53. Harr, Jr, Dr Karl G. "AIA Responds to 'Slay Initiatives', " NCMA, 9: 7-9 (November 1979).

54. Holmes, Oliver Wendell. "The Theory of Legal Interpretation," Harvard Law Review, 12: 417-420 (January 1899).

55. Hood, Joseph L. "The Relationship of the 'Nature of Work' and the 'Type of Contract', " National Contract Management Journal, 2: 29-49 (Fall, 1968) as reprinted in Yearbook of Procurement Articles, 5, edited by John Wm. Whelan. Washington: Federal Publications, 1969 (1077-1099).

56. Hopkins, E. Russell. "The Literal Canon and the Golden Rule," Canadian Bar Review, 15: 689-696 (November 1937).

57. Horack, Jr, Frank E. "Congressional Silence: A Tool of Legislative Supremacy," Texas Law Review, 25: 247-261 (January 1947).

58. -----. "Cooperative Action for Improved Statutory Interpretation," Vanderbilt Law Review, 3: 382-394 (April 1950).

59. -----. "In the Name of Legislative Intention," West Virginia Law Quarterly, 38: 119-131 (February 1932).

60. -----. "Statutory Interpretation--Light From Plowden's Reports," Kentucky Law Journal, 19: 211-225 (March 1931).
61. -----. "The Disintegration of Statutory Construction," Indiana Law Journal, 24: 335-352 (Spring 1949).
62. Impact of Government Policies on Defense Contractors, The. Washington: Financial Executives Institute, July, 1987.
63. Ingrao, Lt Col Anthony P. "Types of Government Contracts," The Air Force Law Review, 18: 63-86 (Spring 1976) as reprinted in Yearbook of Procurement Articles, 13, edited by John Wm. Whelan. Washington: Federal Publications, 1977 (225-249).
64. Jacobstein, J. Myron and Roy M. Mersky. Fundamentals of Legal Research. Mineola NY: The Foundation Press, 1985.
65. Jennings, W. Ivor. "Courts and Administrative Law--The Experience of English Housing Legislation," Harvard Law Review, 49: 426-454 (January 1936).
66. Johnstone, Quintin. "An Evaluation of the Rules of Statutory Interpretation," Kansas Law Review, 3: 1-25 (1954).
67. Jones, Harry Wilmer. "Extrinsic Aids in the Federal Courts," Iowa Law Review, 25: 737-764 (May 1940).
68. -----. "Statutory Doubts and Legislative Intention," Columbia Law Review, 40: 957-974 (June 1940).
69. -----. "The Plain Meaning Rule and Extrinsic Aids in the Interpretation of Federal Statutes," Washington University Law Quarterly, 25: 2-26 (December 1939).
70. Landis, James M. "A Note on 'Statutory Interpretation'," Harvard Law Review, 43: 886-893 (April 1930).
71. -----. "Statutes and the Sources of Law," Harvard Journal on Legislation, 2: 7-9 (January 1965).
72. Langley, Delia W. "Improving Cost Estimates through a Better Understanding of Distributions," Cost Analysis, edited by Gerald R. McNichols. Arlington VA: The Operational Research Society of America, 1984 (IV-33-IV-54).
73. "Legislative Materials to Aid Statutory Interpretation," Harvard Law Review, 50: 822-826 (March 1937).
74. Lenk, Barry J. Government Procurement Policy: A Survey of Strategies and Techniques, Contract N00014-75-C-0729. Washington: The George Washington University, May 1977 (AD-A041820).

75. Lifeline in Danger: An Assessment of the United States Defense Industrial Base. Arlington VA: Aerospace Education Foundation, September, 1988.
76. Llewellyn, Karl N. "Remarks on the Theory of Appellate Decision and the Rules or Canons about How Statutes are to be Construed," Vanderbilt Law Review, 3: 395-406 (April 1950).
77. Lockwood, Robert S. and Carol M. Hillier. Legislative Analysis: With Emphasis on National Security Affairs. Durham: Carolina Academic Press, 1981.
78. Logistics Management Institute. Briefings on Defense Procurement Policy and Weapon Systems Acquisition. Contract SD-271. Washington: Logistics Management Institute, December 1969 (AD709974).
79. MacDonald, John W. "The Position of Statutory Construction in Present Day Law Practice," Vanderbilt Law Review, 3: 369-381 (April 1950).
80. McCarty, Dyke. "The Acquisition of Major Systems," taken from Readings for Systems Contracting Management, CMGT 520, Vol I, edited by Maj C. Michael Farr. School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB OH, Summer 1988 (47-74).
81. McManes, Kenmore M. "Effect of Legislative History on Judicial Decisions," George Washington Law Review, 5: 235-242 (January 1937).
82. McNichols, Dr Gerald R. "An Historical Perspective on Risk Analysis," Cost Analysis, edited by Gerald R. McNichols. Arlington VA: The Operational Research Society of America, 1984 (IV-1-IV-32).
83. Meneely, Commander Frank T. "Determining the Appropriate Contract Type," Concepts, 5: 44-49 (Summer 1982).
84. Miller, Arthur S. "Statutory Language and the Purposive Use of Ambiguity," Virginia Law Review, 42: 23-39 (January 1956).
85. Miller, Clarence A. "The Value of Legislative History of Federal Statutes," University of Pennsylvania Law Review, 73: 158-170 (January 1925).
86. Moffat, Abbot Low. "The Legislative Process," Cornell Law Quarterly, 24: 223-233 (February 1939).
87. Morehead, Joe. Introduction to United States Public Documents (Third Edition). Littleton CO: Libraries Unlimited, 1983.
88. Murphy, Arthur W. "Old Maxims Never Die: The 'Plain-Meaning Rule' and Statutory Interpretation in the 'Modern' Federal Courts," Columbia Law Review, 75: 1299-1317 (November 1975).

89. Nash, Jr, Ralph C. "Risk Allocation in Government Contracts," The George Washington Law Review, 34: 693-718 (May 1966) as reprinted in Yearbook of Procurement Articles, 3, edited by John Wm. Whelan. Washington: Federal Publications, 1967 (465-491).
90. "Nonlegislative Intent as an Aid to Statutory Construction," Columbia Law Review, 49: 676-685 (May 1949).
91. Nutting, Charles B. "The Ambiguity of Unambiguous Statutes," Minnesota Law Review, 24: 509-521 (March 1940).
92. Pluncknett, Theodore. F. T. "Ellesmere on Statutes," Law Quarterly Review, 60: 242-249 (July 1944).
93. -----. Statutes & Their Interpretation in the First Half of the Fourteenth Century. General Preface by Harold Dexter Hazeltine. Reprint of 1922 edition. Holmes Beach FL: Wm. W. Gaunt & Sons, Incorporated, 1986.
94. Pound, Roscoe. "Spurious Interpretation," Columbia Law Review, 7: 379-386 (June 1907).
95. Powell, Richard R. "Construction of Written Instruments," Indiana Law Journal, 14: 309-348 (April 1939).
96. Price, Miles O. and others. Effective Legal Research. Boston: Little, Brown & Company, 1979.
97. Radin, Max. "A Short Way with Statutes," Harvard Law Review, 56: 388-426 (November 1942).
98. -----. "Early Statutory Interpretation in England," Illinois Law Review, 38: 16-40 (1943).
99. -----. "Statutory Interpretation," Harvard Law Review, 43: 863-885 (April 1930).
100. Rishe, Melvin. "The Acquisition of Major Weapon Systems: Procedures and Problems," National Contract Management Journal, 6: 75-96 (Spring 1972) as reprinted in Yearbook of Procurement Articles, 9, edited by John Wm. Whelan. Washington: Federal Publications, 1973 (709-731).
101. Sanders, Paul H. and John W. Wade. "Legal Writings on Statutory Construction," Vanderbilt Law Review, 3: 569-584 (April 1950).
102. Schmeckebier, Laurence F. and Roy B. Eastin. Government Publications and their Use (Second Revised Edition). Washington: The Brookings Institution, 1969.
103. Sparkman, John. "Legis'ative History and the Interpretation of Laws," Alabama Law Review, 2: 190-206 (Spring 1950).

104. Statsky, William P. Legislative Analysis and Drafting (Second Edition). St. Paul: West Publishing Company, 1984.
105. -----. Legislative Analysis: How to Use Statutes and Regulations. St. Paul: West Publishing Company, 1975.
106. ten Broek, Jacobus. "Admissibility of Congressional Debates in Statutory Construction by the United States Supreme Court," California Law Review, 25: 326-336 (March 1937).
107. Thomas, James C. "Statutory Construction when Viewed as a Legal Institution," Harvard Journal on Legislation, 3: 191-221 (1966).
108. Thorne, Samuel E. "The Equity of a Statute and Heydon's Case," Illinois Law Review, 31: 202-217 (June 1936).
109. Wasby, Stephen L. "Legislative Materials as an Aid to Statutory Interpretation: A Caveat," Journal of Public Law, 12: 262-274 (1963).
110. Wiener, Frederick Bernays. Briefing and Arguing Federal Appeals. Washington: Bureau of National Affairs, 1980.
111. Wilder, James J. and Robert Black. "Dependency Considerations in Cost Uncertainty Evaluation," Cost Analysis, edited by Gerald R. McNichols. Arlington VA: The Operational Research Society of America, 1984 (IV-55-IV-68). - - -
112. Willis, John. "Statute Implementation in a Nutshell," Canadian Bar Review, 16: 1-27 (January 1938).
113. Witherspoon, Joseph P. "Administrative Discretion to Determine Statutory Meaning: 'The Middle Road': I," Texas Law Review, 40: 751-848 (June 1962).
114. -----. "The Essential Focus of Statutory Interpretation," Indiana Law Journal, 36: 423-442 (Summer 1961).
115. Wofford, John G. "The Blinding Light: The Uses of History in Constitutional Interpretation," University of Chicago Law Review, 31: 502-533 (Spring 1964).
116. Wyzanski, Jr, Charles E. "Judge Learned Hand's Contributions to Public Law," Harvard Law Review, 60: 348-369 (February 1947).
117. Zwirn, Jerrald. Congressional Publications: A Research Guide to Legislation, Budgets, and Treaties. Littleton CO: Libraries Unlimited, Incorporated, 1983.
118. -----. Congressional Publications and Proceedings: A Research Guide to Legislation, Budgets, and Treaties (Second Edition). Littleton CO: Libraries Unlimited, Incorporated, 1988.

Congressional Publications

119. U. S. Congress. An Act: Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 1989 and for Other Purposes. Public Law No. 100-463, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.
120. -----. An Act: To Authorize Appropriations for Fiscal Year 1989 for Military Activities of the Department of Defense, for Military Construction, and for Defense Activities of the Department of Energy, to Prescribe Personnel Strengths for Such Fiscal Year for the Armed Forces, and for Other Purposes. Public Law No. 100-456, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.
121. -----. An Act: To Provide Certain Additional Fiscal Year 1989 Defense Authorization Policies, To Provide Procedures To Facilitate the Closure and Realignment of Obsolete or Unnecessary Military Installations, and for Other Purposes. Public Law No. 100-526, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.
122. -----. Congressional Record, 133, No. 170: H9126. 100th Congress, 1st Session. Washington: Government Printing Office, 1987.
123. -----. Congressional Record, 133, No. 171: H9449. 100th Congress, 1st Session. Washington: Government Printing Office, 1987.
124. -----. Congressional Record, 133, No. 191: H10911+ and D1571. 100th Congress, 1st Session. Washington: Government Printing Office, 1987.
125. -----. Congressional Record, 133, No. 194: H17435. 100th Congress, 1st Session. Washington: Government Printing Office, 1987.
126. -----. Congressional Record, 133, No. 197: S17791+ and D1614+. 100th Congress, 1st Session. Washington: Government Printing Office, 1987.
127. -----. Congressional Record, 133, No. 198: H11293+ and D1630. 100th Congress, 1st Session. Washington: Government Printing Office, 1987.
128. -----. Congressional Record, 133, No. 199: D1639. 100th Congress, 1st Session. Washington: Government Printing Office, 1987.
129. -----. Congressional Record, 133, No. 200: D1645. 100th Congress, 1st Session. Washington: Government Printing Office, 1987.

130. -----. Congressional Record, 133, No. 201: D1652.
100th Congress, 1st Session. Washington: Government Printing
Office, 1987.

131. -----. Congressional Record, 133, No. 205, Part II:
H11996+ and S18716+. 100th Congress, 1st Session. Washington:
Government Printing Office, 1987.

132. -----. Congressional Record, 133, No. 205, Part III: H12417+ and
D1672. 100th Congress, 1st Session. Washington: Government
Printing Office, 1987.

133. -----. Congressional Record, 134, No. 43: S3544+.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

134. -----. Congressional Record, 134, No. 63: S5270+ and D551.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

135. -----. Congressional Record, 134, No. 64: S5334+.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

136. -----. Congressional Record, 134, No. 65: H3167, S5423+,
and D571. 100th Congress, 2nd Session. Washington: Government
Printing Office, 1988.

137. -----. Congressional Record, 134, No. 66: S5501+.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

138. -----. Congressional Record, 134, No. 67: S5684+.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

139. -----. Congressional Record, 134, No. 68: S5879+.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

140. -----. Congressional Record, 134, No. 69: S5980+ and D604.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

141. -----. Congressional Record, 134, No. 71: S6237.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

142. -----. Congressional Record, 134, No. 77: S6950.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

143. -----. Congressional Record, 134, No. 79: H3848.
100th Congress, 2nd Session. Washington: Government Printing
Office, 1988.

144. -----. Congressional Record, 134, No. 85: H4138+ and D739+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

145. -----. Congressional Record, 134, No. 92: H4488+ and D799. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

146. -----. Congressional Record, 134, No. 93: S8421. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

147. -----. Congressional Record, 134, No. 95: S8561 and D826. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

148. -----. Congressional Record, 134, No. 101: H5047+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

149. -----. Congressional Record, 134, No. 106: H5726+, S9619+, and D930+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

150. -----. Congressional Record, 134, No. 107: S9807. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

151. -----. Congressional Record, 134, No. 108: H5884. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

152. -----. Congressional Record, 134, No. 114: H6248+ and D1015. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

153. -----. Congressional Record, 134, No. 115: S10868+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

154. -----. Congressional Record, 134, No. 116: S10936+ and D1032+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

155. -----. Congressional Record, 134, No. 117: S11090+ and D1041+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

156. -----. Congressional Record, 134, No. 118: S11191+ and D1052. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

157. -----. Congressional Record, 134, No. 119: S11307+ and D1072. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

158. -----. Congressional Record, 134, No. 120, Part I: S11357+ and D1077+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

159. -----. Congressional Record, 134, No. 120, Part II: S11634+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

160. -----. Congressional Record, 134, No. 121: H7067. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

161. -----. Congressional Record, 134, No. 126: H7561+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

162. -----. Congressional Record, 134, No. 127: S12591+ and D1145. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

163. -----. Congressional Record, 134, No. 128: H7681 and D1163. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

164. -----. Congressional Record, 134, No. 129: D1167. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

165. -----. Congressional Record, 134, No. 130: D1179. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

166. -----. Congressional Record, 134, No. 131: D1193. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

167. -----. Congressional Record, 134, No. 132: D1201. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

168. -----. Congressional Record, 134, No. 133: D1213. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

169. -----. Congressional Record, 134, No. 134: D1223. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

170. -----. Congressional Record, 134, No. 135, Part I: H8476, S13462+, and D1229+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

171. -----. Congressional Record, 134, No. 135, Part II: H8578+ and D1232+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

172. -----. Congressional Record, 134, No. 136: H9062 and S13670. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

173. -----. Congressional Record, 134, No. 137: H9066+, S13835+, and D1256+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

174. -----. Congressional Record, 134, No. 138, Part I: H9366. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

175. -----. Congressional Record, 134, No. 138, Part II: H9381+ and D1273+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

176. -----. Congressional Record, 134, No. 140, Part I: S14606 and D1295. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

177. -----. Congressional Record, 134, No. 140, Part II: H9633+. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

178. -----. Congressional Record, 134, No. 143: H9945+ and D1227. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

179. -----. Congressional Record, 134, No. 144: H10033 and S15554. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

180. -----. Congressional Record, 134, No. 148, Part II: S16716. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

181. -----. Congressional Record, 134, No. 152: S17351. 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

182. -----. Joint Resolution: Making Further Continuing Appropriations for the Fiscal Year 1988, and for Other Purposes. Public Law No. 100-202, 100th Congress, 1st Session. Washington: Government Printing Office, 1987.

183. U. S. Congress, House of Representatives. An Act: Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 1989 and for Other Purposes. H.R. 4781, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988 (11 August 1988).

184. -----. Defense Authorization and Base Closure and Realignment Act: Conference Report [To Accompany S. 2749]. House Report 100-1071, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

185. -----. Joint Resolution: Making Further Continuing Appropriations for the Fiscal Year 1988, and for other Purposes. H.J. Res. 395, 100th Congress, 1st Session. Washington: Government Printing Office, 1987 (12 December 1987).

186. -----. Making Appropriations for the Department of Defense, Conference Report [To Accompany H.R. 4781]. House Report 100-1002, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

187. -----. Making Further Continuing Appropriations for the Fiscal Year Ending September 30, 1988: Conference Report to Accompany H.J. Res. 395. House Report 100-498, 100th Congress, 1st Session. Washington: Government Printing Office, 1987.

188. -----. National Defense Authorization Act, Fiscal Year 1989: Conference Report [To Accompany H.R. 4264]. House Report 100-753, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

189. -----. National Defense Authorization Act, Fiscal Year 1989: Conference Report [To Accompany H.R. 4481]. House Report 100-989, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

190. -----. Veto of H.R. 4264: Message from the President of the United States Transmitting His Veto of H.R. 4264, the National Defense Authorization Act, Fiscal Year 1989. House Document 100-220, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

191. U. S Congress, House of Representatives, Committee on Appropriations. A Bill: Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 1988 and for Other Purposes. H.R. 3576, 100th Congress, 1st Session. Washington: Government Printing Office, 1987 (28 October 1987).

192. -----. A Bill: Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 1989 and for Other Purposes. H.R. 4781, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988 (10 June 1988).

193. -----. Department of Defense Appropriations Bill, 1988: Report of the Committee on Appropriations together with Separate Views [To Accompany H.R. 3576]. House Report 100-410, 100th Congress, 1st Session. Washington: Government Printing Office, 1987.

194. -----. Department of Defense Appropriations Bill, 1989: Report of the Committee on Appropriations together with Separate Views [To Accompany H.R. 4781]. House Report 100-681, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

195. ----- Further Continuing Appropriations, 1988: Report together with Additional Views [To Accompany H.J. Res. 395]. House Report 100-415, 100th Congress, 1st Session. Washington: Government Printing Office, 1987.

196. ----- Joint Resolution: Making Further Continuing Appropriations for the Fiscal Year 1988, and for other Purposes. H.J. Res. 395, 100th Congress, 1st Session. Washington: Government Printing Office, 1987 (29 October 1987).

197. U. S. Congress, House of Representatives, Committee on Appropriations, Subcommittee on the Department of Defense. Department of Defense Appropriations for 1988, Part 2. Hearing, 100th Congress, 1st Session, 1987. Washington: Government Printing Office, 1987.

198. ----- Department of Defense Appropriations for 1988, Part 6. Hearing, 100th Congress, 1st Session, 1987. Washington: Government Printing Office, 1987.

199. ----- Department of Defense Appropriations for 1989, Part 1. Hearing, 100th Congress, 2nd Session, 1988. Washington: Government Printing Office, 1988.

200. ----- Department of Defense Appropriations for 1989, Part 6. Hearing, 100th Congress, 2nd Session, 1988. Washington: Government Printing Office, 1988.

201. U. S. Congress, House of Representatives, Committee on Armed Services. Closure and Realignment of Certain Military Installations: Report [To Accompany H.R. 4481 Which on April 28, 1988 Was Referred Jointly to the Committee on Armed Services, the Committee on Government Operations, and the Committee on Merchant Marine and Fisheries]. House Report 100-735 Part I, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

202. U. S. Congress, Senate. An Act: To Authorize Appropriations for Fiscal Year 1989 for Military Activities of the Department of Defense, for Military Construction, and for Defense Activities of the Department of Energy, to Prescribe Personnel Strengths for Such Fiscal Year for the Armed Forces, and for Other Purposes. H.R. 4264, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988 (27 May 1988).

203. U. S. Congress, Senate, Committee on Appropriations. An Act: Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 1989 and for Other Purposes. H.R. 4781, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988 (24 June 1988).

204. ----- Continuing Appropriations, 1988: Report [To Accompany H.J. Res. 395]. Senate Report 100-238, 100th Congress, 1st Session. Washington: Government Printing Office, 1987.

205. ----. Joint Resolution: Making Continuing Appropriations for the Fiscal Year 1988, and for Other Purposes. H.J. Res. 395, 100th Congress, 1st Session. Washington: Government Printing Office, 1987 (8 December 1987).

206. U. S. Congress, Senate, Committee on Armed Services. A Bill: To Amend Title 10, United States Code, to Make Miscellaneous Improvements in the Management of Department of Defense Acquisitions. S. 2254, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988 (31 March 1988).

207. ----. A Bill: To Authorize Appropriations for Fiscal Year 1989 for Military Activities of the Department of Defense, for Military Construction, and for Defense Activities of the Department of Energy, to Prescribe Personnel Strengths for Such Fiscal Year for the Armed Forces, and for Other Purposes. S. 2355, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988 (4 May 1988).

208. ----. A Bill: To Authorize Appropriations for Fiscal Year 1989 for Military Activities of the Department of Defense, for Military Construction, and for Defense Activities of the Department of Energy, to Prescribe Personnel Strengths for Such Fiscal Year for the Armed Forces, and for Other Purposes. S. 2749, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988 (11 August 1988).

209. ----. An Act: To Provide for the Closing and Realigning of Certain Military Installations During a Certain Period. H.R. 4481, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988 (15 September 1988).

210. ----. National Defense Authorization Act for Fiscal Year 1989: Report [To Accompany S. 2355] on Authorizing Appropriations for Fiscal Year 1989 for Military Activities of the Department of Defense, for Military Construction, and for Defense Activities of the Department of Energy, to Prescribe Personnel Strengths for Such Fiscal Year for the Armed Forces, and for Other Purposes Together with Supplemental Views. Senate Report 100-326, 100th Congress, 2nd Session. Washington: Government Printing Office, 1988.

211. U. S. Congress, Senate, Committee on Armed Services, Subcommittee on Defense Industry and Technology. Department of Defense Authorizations for Appropriations for Fiscal Year 1989, Part 7: Defense Industry and Technology. Hearing, 100th Congress, 2nd Session, 1988. Washington: Government Printing Office, 1988.

212. Willett, Jr, Esq, Edward F. How Our Laws Are Made. House Document 99-156, 99th Congress, 2nd Session. Washington: Government Printing Office, 1986.

**Personally Identifiable
Information Redacted**

Captain David M. Steenbarger was born on [REDACTED] in [REDACTED]. He graduated from high school in Elk Grove, California, in 1970 and attended Saint Louis University and Purdue University, from which he received the degrees of Bachelor of Arts in German and Bachelor of Science in Supervision in May 1977. Following graduation, he attended the University of Hamburg in the Federal Republic of Germany and then returned to Purdue University to continue graduate studies in comparative literature. He received a commission in the USAF through the ROTC program and came on active duty in July 1979.

His first assignment was to Space Division at Los Angeles AFS, California. For five years, he worked in the Deputy for Space Defense System's Directorate of Program Control, Space Laser Program Office, and Directorate of Contracting. In July 1984, he entered the Education With Industry contracts management program and was assigned to Rockwell International Corporation's Defense Electronics Operations in Anaheim, California.

In July 1985, he was assigned to Aeronautical Systems Division at Wright-Patterson AFB, Ohio, where he worked in the Deputy for Reconnaissance/Strike and Electronic Warfare System's Directorate of Contracting until entering the School of Systems and Logistics, Air Force Institute of Technology, in May 1988.

Permanent Address: [REDACTED]

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

Form Approved
OMB No. 0704-0188

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; Distribution unlimited	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			
4. PERFORMING ORGANIZATION REPORT NUMBER(S) AFIT/GCM/LSL/89S-14		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION School of Systems and Logistics	6b. OFFICE SYMBOL (If applicable) AFIT/LSY	7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State, and ZIP Code) Air Force Institute of Technology Wright-Patterson AFB, OH 45433-6583		7b. ADDRESS (City, State, and ZIP Code)	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State, and ZIP Code)		10. SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) AN ANALYSIS OF STATUTORY REQUIREMENTS FROM THE 100TH CONGRESS ON THE USE OF FIXED-PRICE TYPE CONTRACTS FOR WEAPON SYSTEM DEVELOPMENT			
12. PERSONAL AUTHOR(S) David M. Steenbarger, B.A., B.S., Capt, USAF			
13a. TYPE OF REPORT MS Thesis	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day) September 1989	15. PAGE COUNT 293
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD 05	GROUP 01	Sub-Group	Legislation Contracts Incentive Contracts Contract Administration Military Procurement
19. ABSTRACT (Continue on reverse if necessary and identify by block number)			
<p>Thesis Advisor: Eileen Donnelly Assistant Professor Department of Contract Law</p>			
<p>Approved for public release: IAW AFR 190-1.  LARRY W. EMMELHAINZ, Lt Col, USAF 11 Oct 89 Director of Research and Consultation Air Force Institute of Technology (AU) Wright-Patterson AFB OH 45433-6583</p>			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> D/C USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL Eileen Donnelly, Assistant Professor		22b. TELEPHONE (Include Area Code) (513) 255-3809	22c. OFFICE SYMBOL AFIT/LSL

UNCLASSIFIED

This study analyzed the statutory requirements from the 100th Congress on the use of fixed-price type development contracts. The goal was to determine how the military departments should further implement these requirements. A comprehensive review of congressional documents provided information to which were applied integrating approaches derived from an examination of the law review literature and current legal texts. These approaches synthesized the information into findings on the trends of the statutes' textual evolution and on statements of purpose.

→ The study found a definite trend from more restrictive language to more flexible language in the legislative history of all four statutes. The purpose of the legislation was to enable Congress to choose the composition of military goods and services based on relative program and military merit within the budget limitations, rather than be restricted to an existing composition because of existing fixed-price contractual commitments. Congress wanted the Department of Defense acquisition community to use a development contract structure which provided for the range of cost outcomes from the unfolding of a dynamic task. Congress wanted the contract type to be compatible with the nature of development effort.

→ The study concluded that further implementation should be limited to defining two key terms in the statutes. "Realistic" pricing is the analysis that determines the financial outcomes of future events and generates a distribution of these outcomes with the probability of each occurrence. An "equitable and sensible" allocation of risk assumes a narrow distribution of outcomes and puts the maximum government financial liability on this distribution to exceed a high percentage of the possible outcomes.

The recommendation is that the military departments use these definitions as the basis of a prescriptive approach for field procurement activities to follow when requesting approval to award a fixed-price type development contract in accordance with existing regulations.

UNCLASSIFIED